



A LIVING FROM THE LAND

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BY

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keeping on Common-sense Lines"; "Poultry-keeping on Small Lines"; "Poultry-
farming as a Career for Women," etc.)



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PREFACE

A GAIN the back-to-the-land cry is with us. And this time the chances of its materialising are most promising. Behind it are to be found, not tens of hundreds, or tens of thousands, but hundreds of thousands—comprising ex-officers, ex-Tommies, ex-sailors, ex-R.A.F.'s, ex-landswomen, and war-stained civilians. Years of campaigning have quite ruled out the city office as a likely place "in the sun," so far as men of the services are concerned. Even the civilian milkman who has retailed milk during the war has suddenly discovered that he has been working at the wrong end, and that the keeping of cows is the only antidote to "war" and "raid" nerves. As was to be expected, too, those women landworkers who have meant business since 1914 have decided in the main to take up land pursuits on their own.

With the above in my mind I decided to write the present volume, which I have endeavoured to plan on rather different lines from the usual books. To have attempted to cover *fully* every kind of land and livestock pursuit would have meant a volume ten or twenty times the size of the present one. I have therefore concentrated my efforts upon the various pitfalls which confront the would-be Arcadian who seeks a living from the land. Those who are going back to the land are cosmopolitan, and I have endeavoured to make the text applicable to each and every one, no matter to which class he or she may belong.

The present desire for "a place in the sun," and to be one's own master is just as strong in the £20 man as it is in the £2,000 person, and in my text I have considered both, not to mention those who come between.

I ask for this volume a "place on the bookshelf," and on the very row that carries the leading standard work on each of the branches dealt with, and which will already be in the possession of most of my readers. To these very books it may be considered a kind of "introduction," which each would-be Arcadian will digest ere passing on to those on the individual branches he decides to take up. The subjects are, of course, dealt with in the light in which I view them.

If my book merely makes the reader think once more over his plans so that these are put on a sounder basis, or so broadens his mind that he gets a return of £2 where otherwise he would have secured but £1, . . . then I shall be glad that I added it to my library and his.

W. POWELL-OWEN.

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A LIVING FROM THE LAND

CHAPTER I ON THE BATTLE-FIELD

"The darkest and coldest hour is nearest the dawn"

NEVER was the back-to-the-land cry more prominent than to-day; never was it more serious. Other back-to-the-land cries have been but flashes in the pan, and for that very reason failed to materialise. One is now tempted to ask if the present revival will mature and to study the type of men who are participants.

Our first thoughts fly towards the soldiers, hundreds of thousands of whom between 1914 and 1918 have had but one earnest desire—to return home and claim that "little place in the sun." A postal ballot showed, I believe, that nearly a million men in our fighting forces wished to settle on the land. Those, such as I, who have corresponded with any of these heroes for, in many instances, years, will be familiar with the pen-picture that follows.

There was a Mr. Brown who, in 1915, was called to the colours. As advertisement manager of a penny weekly in pre-war days, his hours were long and his pay was short. But he put up with this monotonous post, for he had responsibilities, and his weekly salary meant bread and butter for his small family. He had not been long in training ere he began to realise that there were such things as God's pure air and bright sunshine. From his dingy city back-room of pre-war time he saw but roofs and chimneys of dirty, dilapidated buildings that should, years ago, have been condemned. The occasional chirp of a few cheeky London sparrows was all that he heard of Nature's feathered creatures. The scenes, however, were changed in those days of training. At that time the harvest was being gathered in, and fate placed him on a neighbouring farm to lend a helping hand. That was the beginning of his dreams. Each evening, as his toil was o'er, he would plod his

way to the top of] the hill that dominated the fields below. It was his Paradise!

At home Mrs. Brown was also scheming. Her husband's employer had pleaded poverty as the reason for not making her an allowance, so that heavy responsibilities rested upon her as the bread-winner. Ere Mr. Brown said good-bye he had gone the round of his nearest relatives and collected sufficient capital to place his wife in a small business. With the turn of the tide the shop-profits began gradually to mount. Thus Mrs. Brown made it her duty to render a rough weekly profit-sheet to her husband with the colours, and Mr. Brown saw in these savings the wherewithal to buy his "little place in the sun."

In due course came regular requests from Mr. Brown to his wife to send him such and such a book, and to post him various weekly and monthly publications. There was always a weekly parcel duly despatched to Mr. Brown, and Mrs. Brown was acquainted step by step with all her husband's after-the-war schemes. Leaving his training-ground, Mr. Brown sailed for France, and it was not long ere he found himself in the front-line trenches. With him went his text-books! There was that popular standard work on poultry culture, *Poultry-keeping on Money-making Lines*, a volume on farming, a third on fruit-growing, and quite a host of smaller books on subjects concerned with "a living from the land." Copious notes had been scribbled on every page of each, and to have seen "Tommy" Brown eagerly studying those books one would have wondered if there was really a war on. Reading between the lines of his letters sent home, it was quite obvious that Mr. Brown's great wish was to get on with the war and get it over quickly. The dawn was his Arcadia!

Three times was "Tommy" Brown wounded, and each time he reached hospital in England those text-books followed him to "Blighty." During convalescence he found that very many of his fellow-wounded had "after-the-war" Arcadian schemes. He met colonials and men of all classes—"Tommies" who had seen something of the wide world—and he was more determined than ever to realise his dreams of a few acres, poultry, and a cow.

Brown's opportunity came just a day before the Armistice was signed, for he was then discharged from the army with a small pension. On his return home he heard the glad news that the bank balance to Mrs. Brown's account stood at £500. It was not long ere he set to work to carry out his small-farm ideas of being his own master and possessing a place in Arcadia.

Now Mr. Brown's case is typical of many thousands of "Tommies."

Some, alas! have made the supreme sacrifice at the moment even that the dawn was nearing. The thoughts of Arcadia must have stood many tens of thousands of our warriors in good stead in the darkest and coldest hours on the battle-field, in the trenches, and in dear old "Blighty." The fever has spread as rapidly among the officers since 1914, not forgetting, too, our sailors on the seas. We also find it making strong headway in the ranks of those civilians who have capital, and who want to settle down on the land. Many of them, too old or rejected for the army, have caught the land craze as the result of their small war-efforts of increasing the nation's food supply, and of feeding their families. Their war-time allotment must now become a small holding; that solitary sow must be multiplied tenfold; the six-hen idea must be so elevated that the backyarder becomes a poultry-farmer, and the goat must make way for a cow or go equal shares with it in the owner's good books.

To ex-officers, ex-"Tommies," and all who propose to settle on the land in search of a *living* this work should prove helpful. It is not intended to be a complete guide to every branch dealt with. It would need a volume twenty times the size of this text-book to cover fully so wide a range of subjects. My idea is to present, in an easily understood form, stepping-stones to guide the beginner's tread. I realise that the would-be Arcadian will have built castles in the air—it always is so—and, by pointing out the many simple pitfalls as I see them, he may appreciate the help of my guiding hand, and alter slightly his schemes, so that success is rendered the easier of attainment. Of books on small-holding, small farming, fruit-farming, poultry-farming, vegetable-gardening, market-gardening, and the cult of the various livestock there is no end—very many good, sound specialist works. The present work is intended to be a "go-between" guide which, having dealt generally with so wide a subject will see the reader established with definite ideas. He can then choose for study the leading authoritative text-book in each of his selected branches, taking, for preference, complete individual volumes that will prove reliable every-day reference works.

CHAPTER 11

THE RETURNED WARRIOR

"East or west, home is best"

N O two would-be Arcadians plan alike ! Nor should it be so, as individuality has an important say in the question of a living from the land. One man will invest his all in cows, another will specialise exclusively in poultry, whereas a third will lean towards a mixed holding. Below I give extracts from some of the letters received since 1914, seeking my advice as a poultry, etc., consultant. They show clearly how each writer has planned on somewhat different lines.

1. *Colonel* — writes: "I have been a merchant for twenty-six years, but when I get back from this war I wish to settle in England with my wife to spend the latter part of my life. Though I may be getting on in years I have health, energy, brain-power, and the will-power to earn my living. And, liking an outdoor life, I wish to go in for farming, poultry chiefly.

"I have £500 in ready cash to start with, and, after the first twelve months, a further £250. I have never done any farming, but have kept fowls, ducks, geese, turkeys, and guinea-fowl, running incubators too. My idea is to have fowls, a few ducks, geese, turkeys, and guinea-fowl, keep a couple of cows, and increase the number later. I would like to grow my own hay, clover, maize, potatoes, swedes, greens, and have an orchard. Hence the idea of a 100 acres farm. I feel there is so much to be done on the land and one can make it all pay, and, simply loving an outdoor life, and *work*, I feel certain of success."

2. *Major* — writes: "With an experienced man kept to run a poultry farm (about 500 head to start with) and my own work thrown in to help him, what sort of return for any capital invested ought one reasonably to expect? Would you combine the business of egg-production and table chickens, Glasgow being one's market—eighty miles away?

"I would like a *comfortable* cosy home, say four to six bedrooms, dressing- and bath-room, drawing- and dining-room, and the more outhouses the better. My wife is just as keen as I am. I fully realise *everything* at present is higher in price than ever before, but think prices will come down after the war. If the war goes well, and I am spared to see the end of it, my plans will have a chance."

3. *Captain* — : "I am in bed in hospital now, but probably shall be invalided from the service ere long, when I intend to take up poultry and bee-farming. The latter I understand; the former I need your help with. I shall carry out the affair on strictly modern and business-like lines, and wish to make my living at it, starting at first in a small way, and gradually building up as opportunity occurs.

"I shall have about £100 to put into the poultry business, and want to live in a small village close to some good market town for my produce until I have sufficient to rail to London or to run up in my car. How would you proceed to lay out the £100? I do not wish to buy much in the way of hen-houses, etc., as I shall have the assistance of a good carpenter, also an invalid."

4. *Mr.* — : "By calling I am an experienced electrician, and have attained the position of under-manager. I feel the time has come when I want to be my own master. I feel that it would be preferable to commence as egg-supplier for market. I should like a place on main road near London because, as a motor cyclist and having had a mechanical training, I feel that petrol, etc., as a side-line would, firstly, bring in profit, and secondly procure for me the necessities of motoring at trade prices. A second consideration as to site would be either in a district having a rural electrical scheme or a district having a fair sprinkling of country mansions as this might ensure the increasing of my income. My capital would be about £600, although I propose investing £200 to start with.

"I am not prepared to vegetate in a two- or three-roomed cottage during the process, and I should finally require a suitable place, which would be lit electrically, and made comfortable. A point finally not to be missed is that to set up a farm immediately on peace conclusion means the buying of timber, etc., at war rate, and, unless the latter is held for a considerable time, might mean a poor return for capital."

5. *A/M.* — : "At present I am a mechanic in the R.A.F., and in civil life a silversmith; but, owing to chest troubles developed overseas, it is essential to my health that I should take up some outdoor vocation on my discharge. Before entering the business on my own I should like the opportunity of learning what is necessary to know to become a farmer. Are there any agricultural colleges where one can take a course of training? How much capital would be needed to buy a going concern yielding a profit of £2 to £3 weekly?"

6. *Major* — : "I am contemplating going into the poultry business when war is over, and would be glad of your advice. I should be investing some £1,000 in the business, and propose working almost entirely for egg-production. My wife will also take an active part in my plans."

7. *Sergt.* — : "I am in receipt of a pension of £1 a week, and have a capital of just on £500. My ambition for years has been to have a cottage of my own and a small holding to keep sufficient poultry and pigs and grow enough vegetables for our own use, also to go in for fruit-farming. It is hard to decide whether it would be better to start on a small scale and work up, or to spend, say, £100 for stock to commence. Of course my first outlay will be furnishing a house. Would it be better to rent a place and to work

up a fair income and let the question of buying a cottage remain in abeyance? I am not at all particular as to where I settle down—"somewhere in England."

"I am forty-four years of age, and, having spent twenty-six years in the army, am now anxious to settle down. I have had experience with poultry, and have also spent several months on a farm in France. My wife was born on a farm, and I have a daughter, aged fourteen, who is passionately fond of live-stock."

8. *Pte.* — : "I have been brought up on a small farm and have a practical knowledge of most farm work. I have always had to work hard, and my wife is a farmer's daughter, although she has been out to business during the war. We have about £500, and, although I joined up in 1915, I have kept in close touch with matters. Before the war I kept many breeding pens of poultry, supplied sittings of eggs, and ran incubators and brooders successfully. I took a course in table-poultry fattening, and afterwards used to hatch as many chickens as possible during the early months of the year for the London salesmen. At that time I hoped to go in wholly for table poultry, but joined up, and now think eggs, fruit, and vegetables a more profitable combination.

"My present idea is to rent or buy a small holding of about ten acres, plant an acre with fruit, and use the land for the breeding-pens. Then I should use two incubators for the first four months of each year, market all cockerels and surplus pullets, trap-nest the pullets, select the best for breeding pens, and keep the next best 100 each year for a large laying-house. All land not required for runs or rearing-ground would be used for growing oats, wheat, and potatoes. The hope that we are near a finish of this war prompts me to seek your guidance."

9. *Sergt.* — : "I need your advice badly on my proposed plans. I want to get on to the land, and am ready to start in a small way with a capital of £100. Of course I could follow my usual occupation if you advised it, but I want to get a move on. I have a small pension."

10. *1st Officer* — : "Your letters are a godsend to me, placed as I am on the seas and not knowing when a submarine will pop up. My capital will be £250, although my wife is agreeable to carry on any small farm whilst I seek a post until the holding gets going."

11. *Miss* — : "By profession I am a school teacher, but my health has broken down and I am told I must seek an outdoor occupation. I have about £160, and wonder how far this will go should I decide to take a small holding, keep a goat or two, pigs and cows, and try market gardening. Can you help me?"

With land and livestock pursuits there is always that fever which makes one keen to be "up and doing." Receiving so many letters of a similar kind to those already given I can see clearly how that fever is in most cases the chief sign-post to the roads taken. The would-be Arcadian may be likened to a champion sprinter

at scratch whose every muscle is tightened ready for the start-off on the crack of the pistol. Naturally the start has an important say in the decision of the race, *but* there are other factors. The runner must know his speed and be able to measure his capabilities. He must have one eye on the finishing post, setting his pace accordingly. So it is with the would-be Arcadian! He must start according to his capabilities, he must judge his speed as he goes along, and he must ever have in mind the objective aimed at. Thus "a living from the land" centres around the individual landsman or landswoman and his or her capabilities. Success depends upon *men and matters*, as I will explain in the next chapter.

CHAPTER III

MEN AND MATTERS

"One good head is better than a hundred strong hands"

FIRST and foremost must come keenness and a genuine love for land pursuits and live-stock. The fever of which I have written is an excellent factor and an important stepping-stone to success, provided it is well handled. But when it takes the Arcadian into the realms of deep imagination it is dangerous. A fever of the kind in mind depends chiefly upon its having a sound basis. It then acts as a stimulant to profits and progress. A fever based on the supposition that Arcadia has room for those who wish only to "play at the game" is doomed. Land and livestock call for toilers only who are prepared to put in long hours and much hard work to see themselves established and maintained. The pleasures are numerous—liberty, fresh air, bright sunshine, sole mastership, and a "place in the sun," not to speak of a full household larder (which means cheap living) and every kind of produce fresh and wholesome. The self-supporting side of the question is indeed one factor that is so helpful during the period that the farm or small holding is being established. On the other hand, we have work that must be done in all weathers, come sunshine, rain, or snow. But even if it means seven days a week the advantages outpace the disadvantages. Again, those who, to-day—soldiers or civilians—have safely pulled through 1914 to 1918 know what hardships are, what hard toil means and how to keep a stiff upper lip when all seems cold and dark.

With the fever kept in check but reasonably kindled and with a *will to win* the Arcadian must have full measure of his capabilities. Confidence in oneself and in one's abilities is highly essential. There must not, mark you, be that high-handed spirit of self-confidence which marks one out as a "know-all." These are days of progress when the methods of yesterday are superseded by the better ones of to-day. The haughty "know-all" does not

progress, for he remains in his own groove. There must then be a readiness to learn from others and a willingness to put new things to the test. The art really lies in one being able to sift the good from the bad methods. But the confidence of which I particularly write is that which encourages a man to go up the ladder rung by rung. The nervous man whose temperature drops to zero when he finds that returns expected do not come along in the specified time will be too uncertain to secure maximum profits. Patience is a splendid asset in his direction. The man who is confident not only makes and sees opportunities, but also reaps the fullest benefit from them. And land and livestock pursuits are made up of opportunities!

When I write of opportunities I am mindful that these occur in many grades, each varying according to the capabilities of the would-be Arcadian. Certain opportunities present themselves to Mr. Jones of their own accord, just as they do to Mr. Smith across the way. Neither Mr. Jones nor Mr. Smith can help missing these! Then there are openings which are below the surface, and which are realised according to the foresight and prowess of the individual. Such are the ones I have particularly in mind. It means often success or failure as to whether these chances will always go begging or will be made the fullest use of.

As a typical instance of the above we will picture Mr. Jones and Mr. Smith opening the morning's post on their respective mixed farms. Both find a request from the same client, a Mrs. Harris of "Oakdene," Godalming, Surrey, who late in the season desires a price for fifty day-old chicks. Both Arcadians have closed down their incubators, and the enquiry is on that account a troublesome one. Now Mr. Jones replies post-haste that he is sorry he cannot quote as he has closed down his machines for the season. Mr. Smith, however, decides to run an incubator especially for this order and writes Mrs. Harris to that effect. Methodical Mr. Smith not only makes a nice profit on the deal, but the next season seizes the opportunity of sending a special typewritten letter to Mrs. Harris to enquire if she will again require fifty day-olds. An order duly comes to hand for a hundred chicks, and the lady's custom is retained season after season.

Individuality, therefore, counts for very much, and one good head is better than a hundred strong hands. Success, therefore, varies in degree according to the individual man at the helm, and that is the point I wish to bring home forcibly. The small farmer will find his work brimful of opportunities and a happy hunting ground for the use of his head. That is why profits cannot be set

out by rule of thumb, since one man makes pounds and another pence from the same head of stock, and from identical channels.

Next come business methods; and it is here more than anywhere else that individuality comes into the picture, and also confidence in one's work and plans. It is, to my way of thinking, a bright omen that the majority of would-be landmen are well blessed with business experience. That is in keeping with the times, as land and livestock pursuits call for progressive methods of business such as would be deemed a *sine qua non* in ordinary city commercial undertakings. In days now gone one argued that the top rung of the land-ladder was reached only by sheer hard work. And comparisons of the men who were successful lead one to such conclusions. To-day this has all changed, for we find head-work quite as important as (if not more than) manual labour. It is indeed the combination of the two which is the hall-mark of perfection. The small farmer, then, should be the "pivot" of his holding until it is fully established. His personal care and attention to matters will be very necessary. At no time should he loose the reins to any subordinate. When the time comes for him to bring in outside labour—warranted by his means and the development of his holding—he must be more particular in this direction than before or it may bring failure instead of increased measures of success.

To understand my point the more readily let me suggest that the welfare of stock or trees is best studied by the owner of them and by the very one whose capital is invested. That is natural, as negligence means the loss of *his* stock and *his* trees and *his* money. Therefore, when labour is brought in the owner should be the controller and supervisor of same. His place first should be as "pivot" to the farm, seeing where he can seize openings and opportunities. To him will the stock and the produce call out for the best markets. His next step should be a deep and personal interest in his men and in their work. A workman who shows keenness and a live interest in all that he does is worth twenty employes who go along automatically from day to day. The one man is worthy of any salary, and the small farmer should make it his business to keep him and to see that his every comfort is studied. Let there be no rule-of-thumb salaries, as a small commission on, say, stock reared to maturity and so forth will have its due reward.

When small owners "play the gentleman" among their employes the latter never give of their best. I have seen too many cases of failure resulting entirely from this false step. If there is work

to be done the owner's place is with his men—coat off, sleeves turned up, and in working garb. A good small farmer will not mind that, because he will find that confidence in the "boss" gets the best return from the workman. One of the chief factors is the feeding of the stock, with their housing a good second. The owner should never surrender the duty of supervising such vital branches. The thing to bear in mind is that upon the stock or the land or the trees depend the profits, and any neglect must narrow down the latter. Should the time come when a workman has shown sufficient prowess to take over the management, and the owner sees in him a splendid right-hand man, matters are altered somewhat. Such a man needs encouragement, and, if well rewarded for his labour—based, say, on returns—he will prove a godsend. Even then the owner should constantly be on the spot, not, of course, to criticise or to interfere unduly, but rather with a keen eye to watch the welfare of stock and so forth. Under such a working the owner can devote his attention more to the business side, and in escorting likely purchasers of produce over the farm thus taking off the shoulders of his right-hand man everything except *routine*. One can readily see the dangers, through loss of time and so forth, of taking a routine-man from an important task and placing him as escort to a caller who wishes to buy a sitting of eggs. Each week owner and right-hand man might, with mutual benefit, have a friendly "office" talk on business and general matters.

One other point is worthy of consideration, and it concerns a worker's holidays. All work and no play must leave grievances behind, and more so where the owner, on the lines of "playing the gentleman," takes his own annual holiday. I always impress upon my students the importance of studying their men, and in seeing that each has a holiday, arranged of course at the most convenient time. I have devoted much space to this matter of owner and workman, as I realise that maximum returns from land or stock depend upon smooth working. The strenuous work of the "key" man can easily be negated by an under-fellow with a grievance.

The importance of the owner being the "key" man is obvious from the fact that the maximum return depends largely upon the making and taking of opportunities. When giving my close study to letters from students wishing to settle down on the land, I pay careful attention to the handwriting and to the querist's signature. From such I can read the presence or absence of character. The small farmer must also be adept at depicting the class of client,

penning each letter to him. It is an art that can be cultivated, but, once mastered, it means all the difference between minimum and maximum returns if the man is engaged in selling livestock or their produce. To any one but a business man the use of a typewriter on a small holding or small farm would seem quite out of place. But is it? It is not every person who writes a nice, bold, inspiring fist, and yet such is imperative if business is to be done in long-hand. On opening the morning's post we find, say, half a dozen enquiries for stock of some kind or other. Now it depends entirely upon how these are replied to, as to whether or not business accrues. And the extent of the business will often depend also on the reply sent out.

Each of those six letters must be scrutinised closely in order that a good idea of the sender may be obtained. The first three letters would tell me that the senders were novices. Why? you may ask. Because in each of them there is a simple, silly query or an error of fact which no experienced person would include in a letter to a breeder. One man, for instance, asks the price of white Leghorn eggs for sitting purposes, and adds that he presumes large 2-oz. *brown* eggs would be sent. As the Leghorn is a layer of *white-shelled* eggs, I would see that this client is not familiar with poultry matters in general or the Leghorn in particular. A lady desires to be quoted for Red *Road* (Rhode) Island pullets, and another asks if any White *Wynadotte* (Wyandotte) pullets are available. The set policy of the stock-breeder should be to help the novice in every way, and to answer all his queries in detail, and in a bold, inspiring way. The livestock world contains so very many who refuse the helping hand that those who follow my ruling will be well rewarded.

To the novice, or the backyarder or the small man who is desirous of buying stock a nice, bold *written* letter "gets home" if it inspires confidence. In a nutshell, the stock-breeder must go out of his way to win the confidence of every person who sends in an enquiry for stock or produce. The typewriter should be brought into use for replies to all who send typewritten enquiries, and in such cases where the enquirer's high-class envelope and paper warrant the same. The stock-breeder might even keep in stock different grades of paper for his letters. A client who has the address, telephone number and telegraphic address embossed on his note-paper or a crest should have a reply on the farm's Grade I stationery.

Nicely printed and designed stationery, cleverly arranged catalogues and leaflets, sound, progressive advertising, and all such matters affecting the making and taking of opportunities are

leading stepping-stones to success. The planning of these is the "key" man's special duty, because they sell his goods. In short, there must be a *think* behind every drop of *ink*, and from the few examples here given my readers will agree that everything depends upon the man at the helm.

CHAPTER] IV

THE DAY OF SPECIALISING

"One thing at a time and that done well"

THERE is not the least doubt that this is the day of the specialist. Too often does one see the small owner plodding along wearily with a surfeit of lines, each one in the nature of a side-issue. His plan would appear to be that *what he misses on the swings he makes up on the roundabouts*. This policy is not to be turned down if the profits from each and every side-line are satisfactory. More often than not, however, the toiler increases his hours of labour and the high returns of one section are reduced by the losses of another. I am not against the policy of making everything on the holding show a profit, as that is rather what I advocate. The usefulness of any stock or tree or produce must be gauged by its contributions each season to the farm's banking account. That is the true test.

The point I wish to bring home to my readers is that, on every small farm there are one or two tip-top branches which pay to foster and push more than others. Our good friend "opportunity" again comes in here, for the keen man will soon detect the individual section which demands to be a speciality. The slow landsman, on the other hand, will miss the advantage that presents itself. The difference will be represented in so much £ s. d., which, after all, is *the* thing that matters. How, you ask, can one pick out what is to be the speciality of the farm or holding? That is a question exclusively for the man on the spot, the small owner himself.

Local colour and requirements and the markets at one's door will usually decide what is to be the one line pushed more than another. It would be unwise at the start to make one branch stand out against the rest unless there was good and ample reason for same. The owner's experience will often play an all-important part in the choice of the special sections, but this must not stand alone. The would-be landsman may be fully acquainted with

market-gardening, which fact would naturally prompt him to make that undertaking the mainstay of his holding. But he would fail if local conditions by way of the marketing of the produce were against him. On the other hand, if he is dealing with produce for which there is always a good demand owing to the shortage, such would naturally be his select line. And from such a beginning he might so spread his plans that many of the lines allowed for produce to come upon the market during a customary shortage of each kind, one crop (and consequently returns) thus following another. The winter new-laid egg, for instance, is an elusive article from October to March, and is therefore of consideration as a speciality. The autumn new-laid during, say, August and September, when the adult hens are moulting, and the young pullets have not started to lay, is another special line that should be prominent in any landsman's programme.

Again, a small farmer may start with a couple of cows and eventually find himself with, perchance, a very profitable retail milk-round in the neighbouring villages. He would naturally be unprogressive if he did not increase his herd of milkers to meet the local demand. Starting with but two cows, he might by sheer hard work establish such a milk-round. On the other hand, his chance might come through the purchase of such a round. From such a beginning the man might increase his herd of cows to cope with the demand for milk in a neighbouring town that has recently sprung up. With his milk might also go new-laid eggs, cream, butter, cheese, table poultry, the Christmas turkey, geese, ducklings, and table rabbits. The demand experienced would be met, whatever it might be, since the most profitable plan is to let the supply follow the demand. But all the time he would be "touting" courteously for likely orders. He would be progressive enough to issue in season an attractive catalogue of eggs for sitting in both fowls and ducks, day-old ducklings, and day-old chicks, stock birds, and ducks. You can imagine his system of "touting" to be very much after the following style:

Milkman (to Mrs. Windsor after scooping out her milk): "Any new-laid eggs this morning?"

Mrs. Windsor: "No, thank you, milkman, we keep our own hens."

Milkman: "Good, Mrs. Windsor. If at any time you need a broody, sittings, or chicks . . . here's my price-list. Shall be glad at any time to show Mr. Windsor over the farm."

You can imagine the result in the majority of cases. Mr. Windsor will not let many suns set ere he is up at the farm, for

he regards himself as "the" local expert. He will tell members of his local poultry society; Mrs. Windsor, you may guess, will tell all the neighbours . . . and remember, Mr. Milkman, that nothing has been paid in ready cash for such telling advertising. One might go further to show how that same milkman eventually has local agents all over the towns and villages taking orders *on commission* for his wares.

Having made a start, then, the small farmer will keep a strict eye on local conditions, as applied to both markets and soil, until he makes up his mind which sections will pay for booming. There is no need to rush matters along, as sooner or later there is one line that stands out. My idea, of course, is to encourage each reader to embark at the proper time on a speciality line, that will bring in a definite and profitable return year after year. That will be his *support*, and the other branches will be dovetailed in, the winnings on the roundabouts covering the losses on the swings. There is still the mixing of branches, but there is, under my scheme, one definite leading line to keep the owner in clover. If at any time he sees fit to drop some of the smaller sections, and increase his special branch, that may be for the good. Where proper detailed accounts are kept of each section's working, and season after season, it should be no difficult task for the owner to ascertain quickly those lines that pay well and those showing only fair returns, or even a loss.

CHAPTER V

LIVING AND LEARNING

"The greatest learning is to be seen in the greatest plainness"

WHEN the fever of which I have written seizes the would-be landsman, if unchecked, it makes the novice aim high. I am not one to damp a man's enthusiasm, preferring gently to point out the safe roads and letting him think again. I like to see a man's heart and soul behind his programme, as he is more likely to realise his own plans modified slightly, if needed, after due consideration by a more experienced person. It is a good weapon, this fever, if, as I have previously stated, it is kept in check but still aglow.

What must be avoided is an unwise start. I realise this, as it is very easy to be downhearted if all goes wrong at the beginning. But the years 1914-18 have cultivated the stiff upper lip, and such is an asset to those on the land. To be forewarned is to be forearmed, and one *must* have the patience and the pluck to endure. A farm of any description cannot be established in a week; but, if one is wise in the selection of the farm, and of the stock, and starts modestly, and willing to be happiest when the long pull is needed, he will safely reach his objective.

The general farmer in this country has, I contend, always made the fatal error of aiming too high. He has wanted to play big and to occupy a large farm to be counted in hundreds or tens of hundreds of acres. His capital per acre has been placed at from £8 to £12, with a yearly profit, after paying 5 per cent. on capital, of from 10 to 15 per cent. Had he aimed lower, and concentrated all his energy and capital on smaller estates, his returns would have been greatly increased. It is strange, but none the less true, that would-be small farmers of to-day also show a marked inclination to aim high, even with limited capital available. This is a factor that needs special emphasis, as my readers will find it more profitable to start in a small way and make the acreage taken yield its utmost. One can, at any later date, take more land; but

until one is fully established it is well to move slowly but surely. The majority of those now going on to the land have theoretical training in most branches and practical experience in others. Theoretical training is looked upon by many as more of a hindrance than a help, but I beg to differ. Long before practical training starts the operator will know well his theoretical work. Then, by going slowly and putting his theories to the practical test, the results will tell him plainly whether to proceed or strike a fresh path.

If it is at all possible for practical work at an approved training centre to follow his theoretical course, then such naturally is to be recommended, provided his available capital will allow of same. But more often than not capital is already low, and the man plods away "living and learning" as he goes along. To take a practical course in farming means a year's fees, and the cost of board and lodgings for twelve months. Such must be deducted from the available capital, as must the loss of a year's publicity for the farm which is no small item if livestock breeding is to be engaged in. One must therefore make due allowance for these items to be on the safe side. For a year's training an outlay of £100 to £150 might be needed, and this would be well spent by the person with unlimited capital. In fact, such could be but recommended by me, and there will be plenty to adopt the plan. Many are tempted, owing to their inability to spare so large an amount, to spend three months at a training centre. Far better is it to have the full twelve months so that one can understand the handling of the stocks and crops in all seasons of the year.

In the choice of the training farm where pupilage is to be served some little care is necessary. A visit to one or two of the likely establishments would well repay travelling expenses. Much good would accrue from an inspection of the stock and plant and a personal chat with the owner. It would be well to select an establishment where pupils are under the personal care and guidance of the working owner, since it is imperative to make the most of the fees by securing the maximum amount of experience during the pupilage. Agricultural colleges often suggest themselves to the would-be pupil, so that it is well to mention one grievance I have, namely, that these colleges (in concert with most of our general farmers) either ignore the cult of the British hen or omit to teach progressive and commercial methods of handling her. There are exceptions, and I am pleased to note, after so often pointing out this serious omission, that many of these establishments are altering their ways, and following the line of progress. One notable

exception is the Harper Adams Agricultural College, where there are 1,800 stock birds, whilst over 2,000 chickens are reared annually, and 10,000 eggs sent out for hatching purposes during the season. Laying competitions are held at this college, these trials being available for students to see birds from all the leading poultry farms in the country, and thus secure valuable object lessons. One must judge the merits of a training centre, not so much on its extent, as on the branches taught, and the possibility or otherwise of gaining the maximum of experience. Many of those I have in mind fail, in my opinion, because they do not go all the way, falling short of what I consider an all-important branch, viz. the growing of crops for the stock. One needs to get a good insight to the keeping of poultry, cows, and pigs (in particular), and to market-gardening, fruit-farming, preservation of produce, and the cultivation of crops for the stock. In my little booklet, *Poultry-farming as a Career for Women*, is given a representative list of training centres catering for poultry-farmers and small farmers with the branches taught, amount of fees, and like particulars.

With a small acreage there is the great advantage that the owner can give personal attention to all matters, which is hardly possible on a cumbersome estate. Rather, then, would I have the smaller sized farm, even though capital were sufficient for a hundred or more acre estate. Nor must we forget that the larger the farm the greater the amount for ingoing, which would in some cases make a large hole in one's short capital.

A small farmer who is learning as he goes along may wish to know where he may secure prompt advice on any given matter. I may add that most of the specialist papers have an "answers to correspondents" section, and the beginner will be well advised to study the answers given to queries each week and to make full use of the columns himself. Some query "experts" are too fond of the brief "Yes" or "No" or "Should say so" forms of replies which fog rather than help the beginner. It is well, then, to go the rounds and see which one does take a full and personal interest in one's difficulties. I have always gone well out of my way for the novice on whatever journals I have been connected with, and I contend that the best guide as to the journal to subscribe to and support is the way queries are dealt with by the experts attached to same. Sometimes advice is needed at once, and this is allowed for by many journals, the experts thereon charging a small fee for each postal reply sent.

Perhaps the visit of an expert occasionally may be helpful to the beginner, and fees—usually low—in consideration for the novice

—would be well spent in this direction. In one channel or another you will by courtesy and persistent enquiry find someone who will be sympathetic in his treatment of your difficulties. There are three points to remember: (1) enclose a stamped envelope for a reply; (2) write out your queries on one side of each sheet of paper, tabulate and number them, and keep a copy so that when the reply comes it can be filed with the set of questions; and (3) be sure to give fullest details so that the expert can advise you as if he were on the spot. The beginner is usually nervous of seeking advice from persons he does not know, but the person who hesitates is not the one for land-work.

The beginner will find it an excellent plan to cut out all newspaper articles or extracts therefrom that are of a helpful kind. These should be pasted up in a book, each branch having a volume to itself. As far as possible, they should be gathered together also in sections—feeding, management, breeds, ailments, and the like—and a complete index should be arranged as each cutting is pasted upon the numbered page. In time such scrap-books would prove invaluable as everyday reference guides, and if by chance the farm should some day become a training centre for pupils, these scrap-books may be used as the general text-books. If so desired the scraps can be in the form of written notes, the small owner copying in brief any parts of sound articles. Such would be work for the long winter evenings, and I think the hint worthy of mention in this chapter. Much helpful information can be gleaned also from the illustrated catalogues issued by the various firms interested in land and livestock pursuits, a representative selection of which should always be procured.

If capital allows, there is always the plan for the inexperienced to engage a competent manager or manageress at a given weekly wage. The owner could thus obtain experience and no publicity would be lost from the start. Business would be going on from the commencement, and later it might be decided to keep on the manager or manageress on a salary and commission basis. One must study such factors entirely on the results produced, and must take individual circumstances into account.

CHAPTER VI

MY IDEAL SMALL FARM

"The greatest things are done by the help of small ones"

A PERUSAL of the extracts from letters sent to me for my advice thereon, as given in Chapter II, will show that no two are agreed as to the actual plan of running the small farm. Nor should they be, since, apart from having one sound specialist line that stands out from the rest, the choice of programme must be left to the individual. The would-be small farmer must take full measure of himself on the lines set out in this and other chapters. The first two important items are: (1) to have a special line to act as the support, and (2) to start with a holding of medium size. Then capital will have to be allowed a say in the drawing up of the plan. To give an illustration, I will take it for granted that a man has £500 capital. Such a person may aim at a farm of from sixteen to twenty acres, which may eventually be set out something after the following plan :

| | | | | |
|---------------------|----------------------|---|--|---------------------------------------|
| | | 2 acres (for 200 head of poultry for breeding) | 2 acres (for rearing chickens) | 1 acre (fruit-trees) |
| | | | | 1 acre (market garden, etc.) |
| 3 acres (meadow) | 3 acres (pasture) | | 2 acres (for about 600 head of laying hens) | 2 acres (for roots and cereals) |

PLAN OF 16-ACRE FARM

Such a farm would carry, say, 2 cows, 600 head of poultry for laying ; 200 head of poultry for breeding purposes, 2 or 3 (or more) breeding sows, and bees, and such-like as desired. And personally, with such in full swing, I should expect to see profits exceed £400 per annum. The exact amount would depend

entirely upon the man at the helm, and yet my plan can be carried out with £500 as capital allowing even for a reasonable ingoing and a little money as a reserve fund.

To go into the diagram, we have :

1. A three-acred meadow which will be put down to hay and turned over to the cows, after the hay-crop has been gathered, to graze the aftermath.

2. A three-acred plot or field for pasture, upon which the cows would graze.

3. Two acres of grass-land which would be divided up into small wire-netting enclosures each about 20 yards square, with a house or roost in each, and holding a pen of from eight to ten hens and a cockerel. Housed in such small permanent enclosures one can run a hundred head of poultry to the acre, so that in this breeding section of the farm I should run 200 head of poultry for breeding purposes.

4. Two acres of grass-land upon which to rear chickens to "feed" the laying section, for sale or otherwise. It would be resting as regards the poultry during the autumn and winter with the stock then matured and removed.

5. One acre devoted to fruit culture, whether small or large trees. Here chickens could also be reared. If small bush-fruit trees—currants, raspberries, and the like—were planted, the chickens would have to be removed when two or three months old if the fruit was then ripe. I would probably arrange to have here my brooder-house, holding 500 or 1,000 or more chicks, so that when they were eight weeks old they could be graded and passed on to the rearing-ground. On the other hand, I might give this piece of land over to table chickens or to ducklings; but whatever I did I should utilise the ground fully with stock to secure "top" (fruit-trees) and "ground," or "bottom," crops.

6. An acre would be devoted to market-gardening, from which ground also the house might be supplied with vegetables.

7. Two acres would be set apart for the growing of crops—roots or cereals—for the stock. Near here the piggery might be established if it does not exist near the homestead.

8. The remaining two acres would be handed over to poultry—kept for laying stock. My system would be to divide this into equal parts, so that I had an acre on the south side and one on the north. The houses would be arranged to face the south and would be divided up into sections, each with outer wired-in run, varying in size according to the experience of the owner in handling laying stock. The more experienced farmer might run two flocks

of 300 head each. If he did this he would have, say, one continuous laying house divided in the centre, each half taking a flock of 300 layers. That would mean dividing up the two acres into four half-acres—two on the north side and two on the south. Wire-netting would be used to make the enclosures. The idea would be to crop the half-acre on the north side whilst the 300 birds were occupying the half-acre on the south side for six months of the year. They would then be turned over to the north side for the next six months, whilst the south side was being cropped. The crops could be gathered or left for the fowls to clear.

With so many birds run to the acre the land would need to be dug or ploughed, and here again a careful study of my plan will reveal the fact that the laying section is next the two acres devoted to crops, and also the market garden, in case one might desire to have the whole four or five acres ploughed up at a given time. The wire-netting forming the runs would, during the operations, need to be taken down, and it would be so erected to facilitate same. On the same principle, of course, the six hundred layers could be accommodated (under one roof in a continuous laying-house) in six lots of one hundred birds, each flock with an outer enclosure of equal size on both north and south sides. Or a smaller or larger number could be run in each flock. The land, too, could, if desired, be dug with the spade and cultivated for market-gardening purposes.

Before my ideal farm of sixteen acres is in being, laid out as suggested, much difficult ground-work will have to be covered. Supposing I take in hand the man and his £500 capital and give a rough idea of the steps to be taken. His first plans must concern the food for his table, as he must live as economically as possible. That must be the first move in any concern. Next, he must look at matters very broadly, and hit upon the one line which is to see his ship into harbour the first season, and at the same time not to devour too much of his available capital. His thoughts will invariably fly to market-gardening or fruit-culture as the ideal specialty branch. He has been told that apple-trees give a return of from £30 to £50 *per acre*; pears, £30 to £40; plums, £40 to £50; damsons, £50 to £60; cherries, £60 to £80 (often considerably more); gooseberries, £25 to £30; currants, £25 to £30; raspberries, £30 to £40; strawberries, £30 to £40; and cobnuts, £50 to £60. Figures may even have been placed before him pointing out that, by combining one of the soft fruits, a "bottom" crop to standard fruit-trees, the dual return jumps to £60 to £70 *per acre*. Such may be quite true, provided qualifying factors are taken into account.

I will concern myself with but one query: "What happens if a bad year is experienced?" A season can be bad in two ways: first, there may be such a glut that the fruit hardly pays for picking; and, secondly, the crops may be completely wiped out, as in 1918. In both instances, all share alike in the majority of seasons.

Then another person may be tempted to go all out on mushroom and tomato growing. He may be attracted by the statement that the profits from a mushroom bed are reckoned as £1 per yard, and work out the total returns per acre on this basis. Onions may be the pet crop of another man. I do not wish to ridicule these branches and sections, because in their correct places all are good. But I wish to see my student make a safer start on the special branch. Any section, therefore, that is likely to be doubtful at all, or where there is a great risk run is, according to my teaching, best left out of the programme at the commencement; at least, so far as relying upon it for heavy support during the early stages.

Viewing the matter squarely, I see no more certain specialty branch than poultry. You may at once jump to the conclusion that I am biased, arguing that, as a prominent poultry expert, I would naturally lean towards this section. In reply, I refer my readers to the arguments I give from my side to back up my opinion. It is not the idle statement of an outsider. There are very few poultry-breeders of note in this country whom I do not know, and "secrets will out" when one is at the back of the scenes, if they are given in confidence. As a professional poultry consultant, and one who is continually establishing poultry farms up and down the country, and, what is more, controlling them wholly or in part, I am in a unique position to voice a sound opinion. I have handled the rawest of material, sometimes by post alone, and sometimes by post and periodical visits, but I have always seen the man who is all out to win through reach his objective. A few poultry farms I control wholly as if they were my own, and, to take but one of these, I find that this student's record week for 1918 showed a return of £32 on a head of about 150 breeding birds. This was during the breeding season in the spring. Everything, of course, depends upon the "key" man, as I have pointed out, and the methods adopted. The poultry-farmer I have mentioned had not been established three seasons.

I am very much in favour of making a start with stock that will show a return almost from the beginning. The weary waiting for returns does not encourage the novice, but rather disheartens him, and more so if capital is on the small side. An ideal start

would then be made with poultry in, say, early September. Pullets of the current year's hatching (previous March for heavy or sitting breeds like the Wyandotte, and April for light varieties such as the Leghorn and Minorca) would be purchased for delivery the first or second week in September. By time of delivery (mid-September, say) the winter laying-houses would have to be ready for the pullets so that, on arrival, they could be placed in them immediately. My system as outlined allows the pullets several weeks in which to settle down, so that eggs should be forthcoming early in October. Under this plan one does not have to wait long ere returns come in, and, whilst this does so much to give the owner confidence in himself, it also ekes out the capital.

From the amount of capital in hand we must deduct £40 or £50 to cover expenses of ingoing. There may be hay, straw, crops, fitments and the like to pay for, as these will be taken over from the previous tenant. The larger the farm, of course, the greater the amount required for these items. That brings us to one important cross-road ! Before putting into practice one's original plans, it may be well to enquire of the predecessor his views of lines to be taken up for profit as based on his knowledge of local colour, markets, and the like. One cannot afford to ignore such channels of information, because the man who makes it his business to "find out" local matters from reliable sources will be working on correct lines. In the case in point we will take it that there is no stock to be purchased but crops—growing and harvested—and plant of some kind or other. The presence of plant might considerably alter matters. Supposing, for instance, there was a well-constructed piggery on the estate and crops (harvested and growing) to feed the inmates, one would not be wise in not utilising same to the fullest extent. The first thing would be to ascertain from the predecessor his profits on that piggery over a given time. One might, for instance, be able to see the books and accounts. If the man was moving out because he was a failure and you were sure that his piggery showed a heavy loss because of the markets, you would use the buildings for some other purpose than pigs at the start-off. If, on the other hand, the predecessor was flourishing and was leaving the farm in order to take a larger estate, then pigs might be from the start one of the special branches. Such is a point one must not disregard, as, in taking over the piggery, it must be put to best possible use. One might, for instance, put in one sow and hand the other sties over to ducks, after bedding down the floors of the houses.

Upon the selection and purchase of plant great thought must

be bestowed. There are those who, having got the fever, rush off and spend nearly all their capital in plant. I grant you that plant has an important say in matters, but it does not warrant the parting with capital that could be put to better use. One of the greatest failings on a limited capital is to invest at the start in expensive plant. The next weakness is to neglect it, as so very many do. In normal times one could have the "best," as that was even cheap in those days. In pre-war days you could house 100 birds under one roof for 3s. 4d. each, whereas at time of writing the price is well over £1 a head. Maybe prices will drop rapidly, but I mention the point so that the novice will use discretion in the matter. Do not think, from the above, that I advocate cheap and nasty appliances; that would be absurd. No appliance is suitable unless it does its work well! With one eye on expenditure and the other on whether or not a faulty house (as an instance) conforms to the standard necessary for it to allow the inmates to give of their best I am sure the reader will not neglect my pointer.

Having set aside £50 for ingoing, we next need to allow for one's living expenses over one full year as a minimum. On my plan of making the farm support the family as near as is possible, living expenses should not be high, and, if we allow £100 for such an item, that will be ample. Then we come to the stock, and here I propose to start with about 100 laying pullets and 25 laying ducks. I should value these at about 20s. to 30s. each, making an outlay of £190 in all as the maximum. If we allow £60 to represent a reserve fund we shall still have £100 in hand ere the £500 capital is reached. On my stock of 100 pullets and 25 ducks I should expect a minimum profit for the first year of £50, which would amply satisfy me.

We now turn to the question of housing the stock, and my earlier notes will be borne in mind. As things stand at present in the appliance world, the selection of the farm will be even more important than the stocking of it. To-day, more than at any other time, a farm must be valued on its outbuildings. If these are ample they will help the small farmer immensely. Take the case of my 100 laying pullets delivered early in September. Allowing each bird, as a maximum, five square feet of ground-space, we shall need a building that has a total floor-space of 500 sq. ft. I should look among my outbuildings for a suitable building some 12 to 16 ft. deep. If I found one 16 ft. deep, its length would need to be about 30 ft. Some allow each bird 3 sq. ft., but I have taken the maximum, as it is preferable. The design of the building would not interest me so long as the structure was (1) light, (2) well-ventilated, (3) roomy, (4) dry underfoot, and (5) dry overhead.

The interior would be fumigated—all apertures being closed up meanwhile—and then whitewashed. The flooring would next be bedded down deep—six to nine inches—which material (if constantly raked over and hard pieces removed, also with a little fresh litter added now and then) would last about six months without replenishing. I should not necessarily invest in an expensive litter if my capital did not allow of same. Straw, dried leaves, and the like would be quite satisfactory. Perches would run along the back wall with a drop-board underneath to catch the droppings. The latter would, of course, be gathered daily and stored for use on the holding. The perches would fit loosely into sockets, so that they could easily be removed for cleaning, and nest-boxes—at the rate of one nesting-section for each four birds—would be arranged in a dark corner of the house, as layers (particularly pullets) like secrecy.

At this juncture the handy man will show to advantage, and no farmer can get along unless he makes himself handy with hammer and saw. In fact, as time goes on, he will find a special repairing, etc., workshop a great asset combined with a set of tools. It would be my plan, right from the start, to trap-nest these hundred pullets, because, despite any labour attached to it, trap-nesting is essential to maximum returns. Among the few experts in the early days to boom the use of the trap-nest, I now have my due reward in seeing the system in general use—a sure sign that its real advantages have manifested themselves. There is no need for the handy man to spend a deal of short capital over nests or traps. The “front” is where the trap can operate, and, this being so, it matters little if the nest itself is but an ordinary orange-box. The operation of the trap is quite a simple matter. There are, of course, many styles. In the one the bird steps on to a board which works on a pivot, and her weight, pressing down the board, releases a shutter that was originally resting on the end near the front. Once inside the shutter drops and thus prevents the hen from escaping. All the operator has to do is to call round at reasonable intervals, release the hens, and register the egg to each individual.

To facilitate recording, each hen wears a certain numbered or coloured ring on its leg, and by that distinguishing mark is she known. When released the egg is credited to the number on the leg of the individual hen, and a recording sheet is kept hanging up near the nests. The number (or colour) is pencilled on the egg and the latter is weighed indoors at the close of the day. The form of trap here mentioned is by no means the simplest, and I am in favour of the ordinary wire pigeon trap fastened to the

front, which admits a hen when she desires to lay, but prevents her from getting out until released. This idea can be perfected by taking a board large enough to cover the front of the nest and to act as the door thereto. In this board a circular aperture measuring eight to ten inches is cut, and on the inside is nailed a square framework with a space between same and inside of door. To this framework is fixed the wire trap, the wire being bent at the top to carry a drop-shutter or a blind. This blind is weighted at the bottom to enable it to drop readily enough, and is nailed securely at the top. Rolling up the blind, it is lodged on that part of the wire which protrudes for the purpose at the top. As the bird enters she lifts the wire and releases the blind, which, dropping down in the space previously mentioned, keeps the inmate confined and in the dark until she has laid and is released. This complete front is fitted with hinges, and screwed and buttoned up as the door to the nest. A small aperture can be left along the top to admit a little light and to prevent the hen from struggling to get out, but it should not be so large that she can push her head through and perhaps break her neck. Efforts to escape are, however, more often than not due to the owner being irregular in the releasing of the layers.

Complete trap-nests can of course be purchased, and many manufacturers supply trap-fronts only which will fit any type of nest-box. The handy man can, if desired, after purchasing approved types and finding out which gives the best results, standardise his trap-nests by copying the best pattern. The handy man will also be at an advantage should the building selected for the hens require any alterations. A dark structure interiorly will need a glass light in the roof, or perhaps a piece of thick glass will have to be fixed at the bottom of one or more of the sides to enable the birds to see the grain in the litter. As a rule, hens scratch away from the light, and it is an advantage to have the front of the house in part open. The usual type of laying-house is boarded up in front for about half-way, whilst the top half consists of wire netting, at the top of which is a hinged water-proofed shutter—supported at the required angle by movable end supports—to prevent the rain from entering the house. Inside the house an ordinary up-and-down shutter (worked from outside to save labour) of untreated canvas is often arranged to temper down the ingoing air at night. Of designs for the front there is no end, and it is often a matter of taste as to which is adopted. So long as the front of any laying-house is adaptable for both summer and winter conditions, it passes my test. Outbuildings

often have wide coach-house doors which can be reconstructed to form the front of any house. The door can be removed and the aperture covered with boards at the lower half, with netting and rain-shutters for the top part. A window here and there will admit light and sunshine.

I do not think any farmer will have trouble in finding such an outbuilding to set apart for the fowls. It can be a disused stable or coach-house, or even hovel, so long as it answers the description given. And, if necessary, the hundred head of poultry can be divided into two flocks. Their management will be more or less on semi-intensive lines; that is to say, on wet days they will be confined to their roomy laying-house, and on fine days they will have their freedom. On cold days they will have short run-outs rather than their full liberty, as for the best winter egg-results hens need to be "kept up" in all unfavourable weather. The winter management of these pullets will be on lines set down in my *Poultry-keeping on Small Lines*, which deals in particular with the management, feeding, and housing of poultry for egg-production.

The 100 pullets would consist mainly of heavy birds, for the reason that novices do better with the sitting breeds than the non-sitters or light varieties. The former lay better than the latter in the winter on inferior management, and there is the "cockerel" question to be studied in the following spring. In the case of non-sitting light breeds like the Leghorn, the cockerels are small, and there comes a time when, if kept on, they prove a dead loss over cost of rearing for *table*. And if marketed they fetch so very little. On the other hand, breeds of the heavy or sitting kind throw large cockerels which are marketable at a profit to a good age, and even when taken from the run without any special fattening course. If the would-be farmer is experienced in the winter handling of the light breeds he will allow for same, as cleverly handled these respond wonderfully by way of eggs. But such a man will also be confronted with the cockerel question. Light-breed cockerels can be sold of course at "given-away" prices as soon almost as their sex can be told, but that is not a very profitable policy. Rather would I go slowly on the light breeds until I had made a name with my laying strains, when there would be a good demand for the cockerels for stock purposes at tip-top prices. It would then pay me to rear them to maturity and sell them for stock. The choice must rest with the individual owner, but apart from keeping the heavy-breed pullets in the majority they should be kept apart from the light-breed pullets if both kinds are kept, as they need somewhat different handling.

Again, one is tempted to take up too many breeds, which is another great failing at the start. Where but one breed (or two) is kept, complications are avoided, and the novice has an opportunity of mastering that breed. The essence of success in poultry work depends upon knowing your birds and your breed. If eggs for sitting, and day-old chicks, are sold later one can add just a breeding-pen of this, that, and the other breed, but for the sake of their produce only. There is no need to hatch out a lot of pullets from all breeds. Select a good all-round breed and stick to it, remembering that specialising is the thing of the day. Later you can hit home two breeds—one a heavy and the other a light—but it is well to make a name in some special variety as a business proposition. Your good name therein will bring custom for any other varieties you may have listed. Your choice, too, must fall upon a breed that will *suit your soil*, and one that is *popular* if you intend to sell sittings and chicks; also one that combines *table* with egg merits. For the heavy breed my pen at once recommends the Light Sussex as the specialty breed. It is a splendid layer of brown eggs, a good sitter and mother, and, apart from being highly popular, is one of our best table breeds. Cockerels are ready for killing even from the run at an early age, and make extraordinary weights. What is more it has a white leg and a white flesh which the British public admire in table poultry. As regards the light breed, choice might fall on the White or Black Leghorn. The Light Sussex is an all-British variety, and will do well on any soil, even heavy clay, so that I can recommend it generally.

Having, then, got the pullets installed, we shall run them from then onwards for winter egg-production. The observant poultryman who follows my system of trap-nesting will soon begin to see its real advantages. The trap-nest is a kind of "detective of the roost," showing the owner which are the workers and which are the drones. That is what he wants to know, because, in all his future breeding operations, he must utilise the best performers to the full. The systems of trap-nesting, egg-recording, pedigree work, record-keeping and chicken-marking are fully dealt with in my *Poultry-keeping on Money-making Lines*¹—the poultry book with a record sale, and acknowledged by one and all to be the most complete work on modern poultry culture. Here I am concerned with just the outline of my schemes.

Late in December, or early in January, I should think of mating

¹ Price 3s. 11d. post free from Messrs. George Newnes, Ltd., Southampton Street, Strand, W.C.2.

up my birds with the purpose of providing eggs for sitting and day-old chicks for sale, and to provide sufficient chicks from which to rear the given number of pullets for laying the subsequent winter. It is usual to mate up the breeding birds a month before eggs are required for incubation. My plans for the new year would depend upon what appliances I had been able to secure second-hand and cheap from the September to the Christmas. During that period I should make it my special business to advertise locally (using a box number and pseudonym) for poultry-houses, wood, zinc-sheets, incubators, foster-mothers, cold brooders, coops, and wire-netting. I should also make enquiries locally and attend any sales within reach, bent on procuring "bargains" by way of plant. I am mindful that new plant will be costly, and I am desirous of showing methods of economising in this direction. During the war part of 1918, with plant so difficult and wire-netting almost impossible to procure from manufacturing firms, substitutes have had to be the order for many of my students. My policy throughout has been to put these producers on to local "bargains," and I have been amazed at the cheap lines discovered in out-of-the-way places. Anything that is useful, either as it stands or when converted, should be snapped up if the price is right.

We will presume, then, that the farmer has secured several second-hand incubators, also foster-mothers, hen-coops, and poultry-houses, and, say, wire-netting. His next step will be to transfer the 100 pullets that have been run on so far as layers to the spot he reserves for them for breeding purposes. If capital were sufficient to get together the houses and netting, his best plan would, of course, be to place the 100 in the two acres of grass-land reserved for the breeding stock. He might, for instance, have ten wire-netting enclosures, each 20 yds. by 20 yds., and with a house in each to take ten pullets and an early-hatched cockerel. The latter he would buy from a well-known breeder of pedigree laying stock, paying a nice price for same, and securing, if possible, a cockerel bred from a hen with a given egg-record. At least one or two such cockerels might be procured to mate with the owner's best pullets for his own use. The runs would be arranged according to a set plan of the field thought out carefully beforehand, so that space can be left for wide alleys to take a horse and cart. And all enclosures will be fitted up by way of gates, etc., to save time and labour. The first set of pens would, of course, be placed near the rearing section.

By the time mating up is due the houses for the breeders will

be ready, and the owner will have by him the records of every one of his pullets during October, November, and December. Those with the highest records will be mated up for his own use in particular, as the chicks from these he will reserve for future development of his strain. His spring plans will include the hatching out of about 100 pullets as layers the next winter when maturity is reached. His hatchings will be out mainly in March for his own use, although they may perhaps be spread over February, March, and April in part. The February cockerels will make the best breeders, and egg-production from the pullets of various hatchings will be in relays, the March birds starting to lay in October. I refer, of course, to a heavy breed like the Light Sussex. With incubators one might allow for 50 chicks hatching out of each 100 eggs, and of those chicks 50 per cent. may be regarded as cockerels. One might, therefore, say that it requires 100 eggs, if incubator-hatched, to yield 25 pullets, not allowing for deaths. On the other hand, as one becomes more experienced the percentage of hatches will be increased, and, as many broody hens will be set, this will help the average, as hatchings under hens are invariably high with home-produced eggs.

To secure our 100 pullets, we will need to incubate 400 eggs as the minimum, and with these ensured surplus eggs and chicks should be disposed of by means of advertising. I am keen on this business, as it increases the returns tremendously. What is more, it is the snowball system intensified where one satisfied customer recommends another, and these customers come again and again, season after season. The first season the sale of sittings and chicks should be engaged in, as no time should be lost in getting publicity. The "locals" must be attracted in every way, and their custom sought by local advertising. They represent a cheaper trade, of course, than what is secured by means of clever advertising in the specialist papers. The first season, however, prices will be reasonably low, and, apart from attractive stationery, a neat little catalogue will be issued setting out the claims of the Light Sussex, and any other breeds that have been added, as mentioned, to secure custom. Each year, as the farm develops, so will the prices advance.

The chicks will be reared on the rearing-ground and brought into the laying-house to be trap-nested, the breeding birds being left in their breeding-pens, trap-nesting being continued. At the end of the year the owner will find himself with 100 pullets and 100 hens, and his profits for the next season should be more than doubled, as he will have got together an existing, if small, clientèle.

The cockerels from the 400 chicks will have been sent to market at a profit when ready, although a given number might be kept on in the hopes of going to customers for stock purposes at nice figures. In the sale of cockerels for stock a client usually desires a cockerel to be unrelated to the pullets hatched out of eggs purchased in the spring. The farmer will be well advised, therefore, to work on two strains, so that where eggs are supplied from one cockerels are available from the other, and *vice versa*. One will need to toe-punch the chicks, or to place distinguishing rings on their legs (or both) and to keep careful records; but the returns are worth all the trouble, and the results make one the keener on this interesting work.

Maybe the plans will not mature in the way indicated, owing to securing the houses and netting and so forth. There are, of course, alternative methods. One might, for instance, dispense with netting, placing the breeding birds out in the fields in separate lots. The two best pens—ten pullets and cockerel—might be housed in small houses and wire-netting runs, these being kept mainly to supply eggs for one's own use to give the 100 pullets. Instead of housing the remaining eighty pullets in small enclosures these can be allowed their liberty. They can, for instance, be put up in four lots of twenty each, headed by two cockerels. Accommodated in the fields in four houses, they would have free range until such time that one could pen them up in the breeding section.

The twenty-five ducks will be run as a flock, being accommodated at night in any suitable outbuilding. The floor will need to be bedded down deeply with dry litter, as the legs represent the weakest part of the duck. Each morning soiled parts will be removed and a little fresh added. Each duck will call for about six square feet of ground-space, and the quarters should be well ventilated, as a stuffy atmosphere, particularly on close summer nights, is very harmful, enticing the ducks to moult. I should buy the ducks early in September, securing those of the previous February or March hatching, and eggs should be forthcoming about October. I should place at the head of these twenty-five ducks four or five drakes, vigorous youngsters of February hatching, running the lot as a flock for breeding purposes. Eggs and day-old ducklings would be sold in season in the professional way, and a given number of ducklings would be reared for stock. Given free range over the holding, this flock of ducks would prove very profitable, and for eight or nine months of the year would be almost self-supporting, needing only an evening meal as they came in off the ranges to their night quarters. Ducks respond to kindly treatment, and are

wonderful layers when properly understood, even rivalling the hen. Pure White Runners would be kept for laying on this free-range system, and, being "land" ducks, no water for swimming would be necessary. Heavier breeds would be kept for table purposes, being provided with small enclosures and houses and kept as breeders. In my *Duck-keeping on Money-making Lines*, every branch of duck culture is covered in detail, and sections are also included on turkeys, guinea-fowl, and geese.

A modest start is usually made where one engages in small farming, but the drawback to working on small lines is the difficulty of getting sufficient return for the first season or so. On my plan of working up the poultry section a good return is given for a reasonable capital, and that is why I am always so strong on this branch. In short, poultry give the greatest return per acre of stock or crops. It is a bold statement to make, but it is nevertheless true. The risk, too, is much smaller than in any other section. Where one, for instance, spends most of his capital on cows, not only are the returns limited, but they are not easy to manage until one is fully experienced. If, too, one loses a valuable cow the loss is decidedly heavy, and one would, on present prices, have to lose thirty or more of the hundred pullets to equal the loss of one of the larger animals. It is upon the smaller stock, which carry with them the best of all qualifications for the small farmer, viz. rapid production and intensive handling, that one should rely in becoming established. Thus I would develop the poultry and pig side of the holding, and let the cows come last. Rapid production means quick profits, which in turn allow one to build up a farm from the surplus fund. The crops would be developed to meet in time, as far as was possible, the demand made upon them by the stock kept.

There is this to be said of poultry, that the life of the hen as a layer is limited to two years; hence, purchasers must be continually needing fresh stock. In like manner hens are kept largely in backyards—in fact, I might truly say that the backyarder is the backbone of the industry as regards demand. The general farmer ignores the claims of the hens on his farm, and therefore it is for such small farmers to whom I address these notes to supply that huge army of backyard poultry-keepers with the stock they require season after season. From 1914 to 1918 that army has been increased fourfold, and all have been educated to the value of the pedigree bred-to-lay pullet. But, owing to their confined quarters, they do not breed, thus leaving an open field to those who will become stock-breeders. The cult of the hen has so spread

since 1914 that it is quite common to-day to hear the cackle of the layer on many city roof-tops.

There will be a great tendency for small farmers to engage in market-gardening as the special branch. Upon first thoughts that might appear a splendid line. I would remind my readers, however, that the allotment craze has spread rapidly since 1914, and may do more so in the future. Now, it is not reasonable to expect Mr. Jones, who has an allotment, to buy produce from you, so that one must watch the markets closely ere taking a leading step in this direction. For produce out of season and such-like there is always a good market, and one would naturally be wise to cater for same. But such crops need a first-class husbandman to make the most out of them, and, unless one is fully experienced in such work, they are best treated as side-lines until one is sure of success in hitting them home as a speciality. The question of markets is always vitally important with these lines, and when one has settled down and got to know his bearings in this direction then is the time to take them up.

Time and labour are important factors, calling for careful attention. In all cases should the farm be planned on time- and labour-saving lines as it gradually gets into shape. In some instances the small farmer will have the help of his wife or his children or both, or two persons may be joining hands as working partners. In all that one does the question of time and labour should be taken into consideration. With poultry the labour is not excessive, and with ducks it is less so. What is more, both branches are suitable to hand over in time to the farmer's wife. My post-bag tells me plainly that the wife is just as keen on the husband's farming schemes as he is. That arranged, the farmer can set to work on other branches, merely supervising his wife's poultry routine.

Pounds, shillings, and pence will have a say in many schemes, and of course the amount of capital available must be given its full due. Some will have but £50 to start with, others £100, £200, £250, £300, and many over £500. In each and every case must the individual go into all the pros and cons. It is strange, yet true, that I have great difficulty in ascertaining from some of my students what capital they have. Upon pressure I often get a reply couched in such words as the following: "You need not worry about capital; that is ample"; or, "Capital is no consideration; it is *ad lib.*" It is wrong to work out schemes without taking into full account the amount of capital; it makes all the difference between success and failure. Sovereigns are to one man what farthings are to another! Even with unlimited capital, it is well

to start in a reasonably small way, and get to *walk* firmly ere trying to *run*.

My sixteen to twenty acre farm has been planned to meet the circumstances of all with a reasonable amount of money. The meadow and pasture land can be wiped out, together with the cows, and the two acres of land for crops can go. Most of the specialist poultry-farms are in the neighbourhood of six to eight acres, and it is surprising what can be done on a small farm. Before the war one of my students had an eight-acre farm devoted chiefly to poultry with pigs, and utility goats as the side-line. To-day she has 100 select pedigree breeding hens, 6 cows, 8 breeding sows, 4 stores, and 1 pure pedigree boar (pigs on open-air system), and grows food for the stock—all on the eight acres. Pigs and cows have, of course, been returning excellent profits and she has accommodated herself to the times, which is of course the right thing to do when you become established. You will naturally watch your accounts for each branch, to see where to invest the profits as you go along.

The person with a small amount of capital, say £100, can still take up poultry on a small scale. The day-old chick and duckling trade represents an open field for those who invest in a few incubators and foster-mothers, later on increasing their incubator capacity. The eggs would have to be purchased from reliable local breeders possessing good strains and contracts for supply at agreed prices entered into. The hatcher would have to make the channels of sale by local advertising, and so forth. He might arrange, sooner or later, for corn-chandlers to have a display of his chicks in their windows, and to take orders on commission. Here is where the business element will score. Out of the profits more incubators would be purchased, and each season trade would increase until with the capital available he could keep his own breeding stock to supply eggs for the machines. The sale of day-old chicks and ducklings would be a seasonable trade, but when fully established there is sufficient profit made in six months to satisfy one for a full year. And with breeding stock kept these would in out of seasons be giving new-laid for sale. Take a discharged soldier with a pension and £100 to invest. With a kitchen garden, a sow, some rabbits, and the day-old chick investment he could help to make himself and family self-supporting, and also work up a profitable business.

Sidelines in plenty could be arranged. He would naturally be an agent for the incubators he used, and poultry foodstuffs and accessories could be added. His business would be to advertise

such locally, and serve those customers ordering chicks or ducklings. Such a man would regard a shilling as a nice little sum to swell the whole, and, that being so, he would not despise returns that to another would appear small and insignificant. He might, for instance, do a little dealing, buying second-hand incubators (poultry-houses and accessories and dog-kennels, for all that), repair them, and sell by means of a price list and advertising at a reasonable profit. A good head, a clever fist, and hard work will get any man a living! In his incubator list would appear illustrations of the appliances he was agent for, orders being sent direct to him, and he working upon a commission basis with the manufacturers. No stock need be carried, he merely sending along his orders and remittances less his commission, or as he had arranged. On the back cover of his catalogue would be a list of poultry and such-like books that could be obtained from him. These would be purchased from the publishers at trade prices, and the discounts would bring in a little return to help matters.

When a person is seized with fever that bids him go on to the land he forgets all else except Arcadia. This is rather an unwise policy. The discharged man should certainly answer carefully my question, "What were you before the war?" Having replied he must weigh things up and see how far his back-to-the-land idea and his pre-war occupation will go hand in hand. This will not apply, perhaps, to the person with sufficient capital for his farm undertaking, but it will appeal forcibly to the man with short savings. In securing a living from the land the vital period is at the start, and, where one man who hurries matters will fail, another man, who is bent on a sound but slow beginning, with a post at the back of him, will pull through. Already I have given extracts from letters received by me, and they may be taken as typical. I will deal with them as they affect the point at issue.

First of all, we have Mr. Brown in Chapter I, who in pre-war days was an advertisement manager. Now, he could take a post as advertisement manager if his capital were short, and place a manageress in charge of his poultry farm, or go along in a small way with his wife in charge of the poultry. His knowledge of advertising should be a valuable asset from the view-point of working up his poultry business by advertising, etc., and when the poultry section was on a paying basis he could give up his city post of advertisement manager. But we find that Mrs. Brown has got together a nice business, and, if capital were at all short, Mr. Brown's best plan would be to let his wife continue the business whilst he went and explored the land. It might for a

time mean sacrifices, but where there is a certain support during the period of establishing a farm or holding, such should, if possible, be retained until the holding is on a paying footing.

In Chapter II we have the case of Mr —— (letter 4), who is by calling an electrician. In his letter he suggests the lines he would run in conjunction with his "living-from-the-land" scheme. Naturally I support him, and you can imagine what opportunities he (or his wife) would have of showing the tourists round his poultry farm whilst their motor-car was being attended to. Such a man would see that every caller knew his business and the nature of his side-lines. He would have a card printed carrying his name and address and the fact that he made a specialty of selling new-laid eggs and table chickens, also sittings, chicks, and stock birds, also that he sent out weekly baskets of produce: 1 table chicken, a dozen new-lays, 1 lb. butter, and so on, for a given sum. If he kept a dog or two and had puppies available many a client would take one home in the car and leave a cheque behind for it. Perhaps some of the callers may use the road for motoring constantly, which should see them pull up regularly for new-lays, an occasional table chicken, and so forth. Such brings grist to the mill. Wherever such is needed, then the would-be landsman will take his pre-war capabilities into consideration.

In Miss ——'s case, also referred to in Chapter II, she might run a small private school in conjunction with the land scheme. Later on, her power of teaching might stand her in good stead were she to turn her established farm into a training centre and take pupils.

In Pte. ——'s case (letter No. 8), in Chapter II, we would naturally agree that one of his chief branches would be the raising of table poultry, in which he has had so much experience.

In certain instances the wife may consent to continue at business whilst the holding was being established.

Capital, too, will vary in many instances. One man may have a fixed amount, whereas another will have, in addition, a pension. The latter would, of course, be the kind of support I am aiming at to see the farm over the gate, and it would make up amply for a smaller amount of ready cash.

A study of the letters given in Chapter II will reveal the fact that some of the writers are planning far too high. It is unwise to play for too big stakes right away, although by all means let the objective be a good one. Time must, however, be allowed for such development to be made. As I have said, make full use of the outbuildings and existing plant, and remember that there

is no ideal ready-made farm. If you insist on having so many bedrooms and so forth to the house, then your capital will have to be unlimited. If you cannot afford a horse, then try a donkey, and, if "Neddie" is ruled out for the same reason, do not be ashamed of a hand-cart to take produce and empties to and from the station. Work up the ladder gradually, placing the foot firmly on each rung to prevent any slipping back. Make the farm, too, support the household as far as is possible. If you cannot afford a cow, keep a goat (or two); you can then have your home-produced butter, cream, cheese, and meat. Your pig will give you your breakfast-bacon and the poultry eggs and table chickens. You can rear your turkey for Christmas, and have occasionally treats of goslings and ducklings, not to forget a fat tame table-rabbit now and then. Your fruit and vegetables will follow as a natural sequence. As soon as possible master the feeding of the stock and produce as much food for them as possible. There will be roots, and perhaps cereals, hay, clover, lucerne, and such-like, and then you must pass along the waste. In the latter direction the pigs will get all the small potatoes and waste green-stuff; also the buttermilk, whey, etc. The rabbits will also claim their share of green-stuff, and the poultry will need some of the potatoes, particularly chickens being fattened. Hand everything down, and avoid all waste.

CHAPTER VII

POULTRY CULTURE AS A PROMINENT BRANCH

"Drive not a second nail till the first be clinched"

POULTRY husbandry boasts of many sections, including : (1) new-laid eggs ; (2) sittings of eggs ; (3) day-old chicks ; (4) stock birds, and (5) table chickens. Some make a specialty of one only, whilst others combine several, so that I will deal briefly with the pros and cons of each.

The production of new-laid eggs as an exclusive line seems to appeal very strongly to would-be poultry and small farmers. But it has its disadvantages. During certain seasons more is realised for eggs than at other times, and naturally, if one specialises in eggs all the year round the average price is decreased. New-laid eggs are in most demand and at the highest prices during two periods of the year : (1) August and September, and (2) October to March, and we must plan, when our system is in being, to get full egg-baskets during those months. It needs little thought to account for new-laid eggs being scarcer in August and September than in, say, June. At the end of July and the beginning of August pullets of the previous year's hatching and older hens commence normally to moult after a season of laying. Egg-production thus stops, and the egg-basket would, if steps were not taken in other directions, be empty until October, when the pullets of the current year's hatching commenced to lay. If the weather is against the pullets in October, or they have been late hatched, eggs may not come in from them till November or later. The winter egg is a very elusive article, and it will be the small farmer's special aim to make the most of new-laid eggs from August to March. To allow of this he must work on systematic lines, and get to understand fully the management of layers.

Taking winter new-laid eggs first, we must rely for these upon the pullets of the current year's hatching. The first slogan to remember is that late hatching is the cause of 90 per cent. of the failures to get pullets into lay in time. It is well to remember that the heavy-

breed pullet hatched in mid-March and the light-breed pullet of mid-April hatching are the ideal winter layers, which, under kindly handling, come on to lay some time in October. These should always be in the majority among the hatches, although, as I have said, the balance can be spread over a given period to ensure relays of layers. *There is nothing like a vigorous February-hatched cockerel* when mated to pullets or hens for throwing strong, robust chicks in the following season, so that a hatch or two in February will give a few such cockerels, and also a limited number of pullets. A few heavy-breed pullets can see light of day in early April, but March is the month to keep in mind. In like manner there can be a few March chicks brought out in the light non-sitting breeds, also a limited number in early May; but here April hatching will be the prominent aim.

The first thing you must do, therefore, is to make sure of those correctly hatched pullets. You may be tempted to sell the early sittings owing to the demand, as most poultry-farmers are; but you will refuse. You must study number one in this vital matter! Ere the season opens you will decide the number of pullets you will require for the next winter, and you will allow for same in your hatchings. Not an egg nor a day-old chick must be sold if it is likely to throw out your season's work. In the matter of early chicks failure is often due to the owner relying upon *broodies*. You will not do this, as it depends upon the season and other considerations as to whether or not there will be plenty of broodies at the required time. It so often happens that when a person finds himself without broodies he rests content to wait for some of the hens to get the fever. By that time, however, it is too late to secure the correctly hatched chicks, and when the winter laying season comes along he finds himself with late-hatched pullets and empty egg-baskets. You will, therefore, start with one or more incubators in anticipation of broodies failing, and then you will use the hens as an auxiliary force for incubation as they fall broody.

To secure maximum returns, there must be no hitch in the hatching operations. Everything must be planned to schedule, and you must have forethought and allow a reasonable latitude for mishaps. Thoroughness must be the keynote! You will study closely breeding and rearing methods, as to you the best use of egg-, chick-, and hen-power on the farm will double and treble the profits. Breeding will have a vital say in your operations as the quality of a chicken, also its stamina, will depend upon parents. You must at all costs get the *hatchable* egg, as the greater percentage

of chicks you secure will affect your profits. If you have your own head of breeders, and they are well managed and fed, you will have good fertility results, as it is very noticeable that better hatches accrue from home-produced eggs—other things being equal—than from purchased sittings that have travelled. This is one strong argument as to why you should run your own breeding stock, particularly if you hatch and rear extensively. You will have already noted my ruling that the February-hatched cockerel makes the most vigorous male, and I wish to emphasise the fact that hens make the best breeders from the female side. The ideal mating is a February cockerel in his first year to hens in their second season. I do not wish you to take this ruling too literally, and to be under the impression that pullets are useless in the breeding-pens. A hen has the advantage over a pullet in that she lays a larger egg, is older and more settled down, and, having entered her second season, must have passed the first year's test as regards health. The hen, too, gives a strong rearable chick, other things being allowed for. If you trap-nest and breed on pedigree lines to secure record producers, the use of hens will strengthen weaknesses due to liberties you have taken in either breeding or housing. But, second to the hen and cockerel mating, comes that of pullets to an adult cock, and thirdly, say, March pullets to a February cockerel, age being on the latter's side, and thus helping matters. Whilst then you will use hens where possible, the occasional use of pullets as breeders will not be harmful, but you will perhaps try to secure an older male to go with them.

Once you have got your *hatchable* egg through the breeders you will make full use of it. You will master the ABC of hatching by both incubators and broodies. Your first year will be your test, and all mistakes will be carefully noted, for the very reason that the second and subsequent years for the poultry-man are identical, so to speak, with the opening season. Always, therefore, treat mistakes as an expensive lesson, and you must get back the losses when subsequently you do things correctly, thereby increasing your returns. The first thing you will have to guard against is the overfilling of the incubator. The manufacturer will sell you a 100-egg machine, in which you will place, if you are not warned, 100 eggs. You will be led to understand that your 100-chick foster-mother will take 100 chicks, and if not warned you will try to fill the appliance to its utmost. Now, however, you have my guidance and will put eighty-five to ninety eggs in the 100-egg machine, and a like number of chicks in the 100-chick foster-mother. You will get to know your foster-mothers and your incubators be-

cause even these artificial appliances have their individual little fads. One incubator, for instance, will hatch wonderfully well early in the season ; another will fail, but come along later. You will also store your eggs with care prior to incubation, and avoid using stale ones which are uncertain in their hatching power. Once you get the incubator going—and, if a new one, you will fit it up exactly as advised by the maker—your first experience, if a novice, might be broken yolks, because in your ignorance you placed the eggs in the machine directly the degree of heat recommended was reached. Instead you will, now that you are informed, let the incubator cool down ere the eggs are inserted, and this is arranged by opening the door to the egg-section or pulling out the egg-drawer.

The little details count in poultry work, as you will find. The incubator house must, of course, be a suitable one ; but an outhouse can usually be converted by means of a few alterations. Double roofs and walls, the space (three inches or so) between being packed with shavings or straw, give an even temperature within, and a porch with outer door allows the owner to enter and close the outer door ere the inner one is opened. This will prevent an inrush of cold air. With the machines placed on benches and with a thermometer hanging on the wall inside there will also be a “ working ” table within. In the choice of an incubator you will find that the best makes give the maximum returns, and, for a novice, perhaps the hot-water or “ tank ” machine is the easier to work. You will not make the great mistake of having cumbersome machines to start with, as, if there is a mishap, think of the heavy loss. You will do better with the smaller sizes down to the 50-egg machine.

When the eggs have been placed in the machine they must be well looked after during the earlier period, which is the most vital of the twenty-one days. You will test the eggs carefully and remove addled or infertile eggs to conserve incubator-power and to prevent the temperature being affected by the bad eggs. You will make the most use of your fertile eggs, whether under hens or in incubators, as all waste must be avoided. I will give an example of what, under my original systems, I call a saving of hen- and egg-power. Ten hens are given twelve eggs each, and the eggs are not tested—at the end of twenty-one days forty chicks appear out of the 120 eggs. And ten hens are left idle for months to look after those forty chicks ! You will not work that way. First of all, you will, on the same day, set a lot of broody hens ; after a week all the eggs will be tested for fertility, and you will remove all addled and infertile eggs. Now you will shift up the eggs until each hen has a dozen *fertile* eggs under her care, which

will release some of the hens for a fresh batch of eggs, and the process of grading and giving each the maximum of *hatchable* eggs will be continued. Such a system can also be carried out with the incubators, whilst hens and machines can be worked as a combination if desired, one feeding the other with eggs or chicks or both.

Once the chicks are out you will remember a simple little rule of "kill well and breed well." Any chick that is not strong will be likely to bring in a loss sooner or later, for the care bestowed on it. Group the chicks up when hatched and see that every hen has her full brood of a dozen chicks as a minimum. Do not be so wasteful as to let a hen run about in charge of two little chicks, as we so often see on a farm. Let there be full broods, and again, do not let the hens remain with the chicks indefinitely. Study the season, and get the hens into laying profit early, amalgamating the broods so that they can keep themselves warm. As the broodies return to the nests they will be ear-marked, as they must have a lot of eggs stored within them during the long period of resting, and the owner must obtain the same. If not wanted elsewhere, as for breeding, they can be run as a special flock in a separate house, being especially fed up for eggs. This grading would be essential if the broodies concerned were shortly to be disposed of, as in the autumn. Otherwise, when sold they would be full of eggs.

Outbuildings will prove a boon for early rearing, the chicks being kept under cover until they are strong on their legs. No matter whether they are reared by hen or by foster-mother, you will, at about eight weeks, grade them up into sexes and again into sizes. Upon this grading depends the degree of success meted out to the rearing operations. Mixed lots of chicks cannot thrive, as the cockerels eat more than their share of food and the pullets have to go without and be bullied and hustled about. In like manner the large, well-developed chickens push the smaller and younger ones to the wall. Remembering this, you will grade well and have a system of moving up the chickens to fresh ground and fresh wire-netting enclosures. It is a question of step by step from egg to maturity, with every chick following in line. You will, about the first week in September, have a careful look at the maturing pullets to see if they are backward or forward. Meanwhile, of course, many of the cockerels will have been marketed for table purposes, and the best will be pushed on for sale or use as stock. The winter-laying quarters will be ready by mid-September, and the pullets placed therein. They will thus have a few weeks to settle down, and, when placed in their quarters, they will be graded in lots of even development, as, for

instance, those nearly in lay, those that are coming along nicely, but will be later than Grade I, and those that are backward. All will need different treatment, and the new-laid egg specialist must master the art of judging forwardness or backwardness in the breed concerned, and ascertain the best treatment for each individual flock. Sometimes pullets will lay in September, or even in August, when they are not likely to maintain their winter egg-output. After producing a few eggs they go into a false moult, and do not commence to lay again till around Christmas. Such must be avoided, or the winter returns will be jeopardised, and one pullet will teach the habit to her companions.

As July approaches you must also grade up your adult hens and group them up according to the objective ere the moult commences. My plan is to keep pullets for eggs their first season, and chicks their second. Thus, once I know which are my best layers, and which ones I am going to reserve for breeding the next year, I let these go on for laying, feeding them for eggs and letting them moult out late, so that they will, after the late moult, come into lay again just as it is time to mate up. Those that I intend to dispose of I also feed up for a last crop of eggs prior to selling them off, and to do this I increase the feeding, and particularly the animal food, and guard against the start of the moult. Those I decide to keep on for winter laying and which, therefore, I desire to have in lay again by the October, I encourage to moult early by reducing the rations and by increasing them as the feathers drop. All these methods of management you will go out to master, and in my *Poultry-keeping on Money-making Lines* and my *Poultry-keeping on Small Lines* they are set out in detail. In fact, these two text-books should be in the hands of all my readers, as they cover the whole field of poultry work. You will be careful to keep loose feathers out of the houses and runs of those hens you do not wish to moult, and likewise pullets coming on to lay, otherwise the latter may be tempted to have a short false moult ere they even begin to lay. The presence of feathers, on the other hand, will help the moult at the start with those birds you intend to moult out; but afterwards, when in full swing, utter cleanliness should be observed and all feathers must be brushed up daily. You will avoid mixing hens with pullets, and will remember my slogan of feeding and treating each graded flock according to its individual condition and the object in view. Therein lies the art of making the most of hen-power. You will cultivate confidence in yourself in all you do, as that is a powerful factor.

It is a golden rule to remember, where egg-production is con-

cerned in the main, that breeding stock should be kept on the light side, pullets on the heavy, and hens in the proportion of one to two of pullets. Most poultry-farmers try to keep the hens about equal in number to the pullets; but, rather than half and half, I prefer two-thirds to be pullets and one-third hens wherever possible. The pullet is undoubtedly the best winter layer, and in her first year lays, as a general rule, more eggs than in her second season. The two-year-old hen comes in for breeding, and, unless an exceptional performer, she should be disposed of before she moults at the end of the second season of laying, being, as advised, force-fed for a last crop of eggs prior to sale. Whilst, however, two years of laying may be taken as the life of a hen for egg-production, there will be exceptions in the case of high-performing bred-to-lay stock. Such might be kept over a third winter. As I pen these notes I have before me a letter from my friend, Mr. C. E. de Trafford, of Hothorpe, Theddingworth, Rugby, acquainting me of the record of one of his White Wyandottes which I have been closely watching. In three years this hen, "Snow-Queen" by name, has laid 640 eggs, and is still laying. Then there is the question of individual birds laying more eggs in the second than in the first year. A Light Sussex hen in a pen belonging to Mr. M. W. Slade of Mallard's Court, Stokenchurch, Oxon (manager, Mr. F. A. Bowker), which won honours in the Harper Adams Laying Contest, laid 163 eggs in her pullet year, and 192 in her second season. In fact, the second season's heavy laying is a feature of Mr. Slade's strain, and of course stamina is essential for that. There will be exceptions, therefore, to be allowed for. The breeding life of a hen (and a cock for all that) is just as long as she is useful. No progressive man would keep strictly to rules in these matters.

In utility egg-farming flock-averages count for everything, and you must do all you can to secure them. The average man is not particular as to what birds he puts into his laying-houses, but I want you to be progressive in every direction. Your breeding operations will be the key to your success or failure in the laying section of the farm. That being so, you must use as breeders only the best performers and those bred from the best layers generation after generation. It is the prolonged breeding on systematic lines and the use in the breeding-pens of the best material and the knowing definitely of the pros and cons of each bird that make the roads the smoother. The cockerels used will be from heavy-laying dams, and nowadays these are procurable from all the leading breeders at prices according to the record of the dam and the pedigree and performances of the line. Where one keeps hundreds

of layers one does not trap-nest the lot, but has one special laying-house fitted with trap-nests wherein each autumn a given number of select pullets are placed and trapped. From these the best performers are selected and transferred to the breeding section. If you so decide, these pullets can be trap-nested for the whole twelve months, and used for breeding in their second season, or they can be trap-nested for the winter months only. Personally I should advise you to trap-nest all selected pullets in their first season as layers, and again in their second year as breeders, when at the close you can say which are worthy of a third season in the breeding-pens. You will readily see that all the time you are selecting and improving your breeders you are raising the standard of your layers (their progeny) in the laying-houses. You are putting each year into the latter the best possible material, and that is as it should be.

That brings us to another of my arguments. If, by clever breeding and attention to details, also regardless of expense, you are getting together tip-top layers to give you high flock averages, why not tack on the side-lines of selling sittings of eggs and day-old chicks in the spring, and stock cockerels and pullets in the autumn, also mated pens? The sittings and chicks will follow on as the harvest after the winter new-laid, and will increase the yearly average. What is more, as your layers improve, so will your prices for sittings, stock, etc., go up! The sale of cockerels bred from record hens in trap-nested strains will fetch a good price and that will get you over the difficulty of having to sell cockerels for table. Stock pullets and hens can also be sold, and any adult hens you wish to dispose of can be made up into small pens of, say, six or eight, and a cockerel, and sold in the spring. You need to get home on one or at least two breeds, as already mentioned, and the demand will grow year by year, enabling you to clear very many of your light-weight Leghorn cockerels at a high price for stock instead of at a very low sum for table.

Now, to make the most out of poultry husbandry, you must be progressive in every item of management. The general farmer played at the game until he declared that "every hen died in debt." That has been the main reason why the laying hen has been kept back so much. And all the writers on farming matters still regard the laying hen from the farmer's old-time view-point. Had the farmer bestowed on his hens as much attention as on his cows and crops he would have seen which paid the best. But, always late in hatching, and a non-user of artificial hatching and rearing appliances, his pullets could not but be late in starting their

winter laying. At a time, then, when in consequence of late hatching they were not laying, instead of feeding them into condition, the general farmer would deny them extra food until spring came round, when anything in feathers ought to lay. The birds, too, had no shelter in the winter, and were subjected to all kinds of bad weather without anything by way of feeding and housing to counteract same. All this has changed, it having been left to those other than the general farmers to lead the way. It is no use just throwing down the food and collecting the eggs, or running cross-bred mongrels, like the farmer. For the layers there must be Intensive Culture, when £100 or more per acre profit can be returned. The Board of Agriculture even to-day carries with it the old-time ideas of the general farmer as applied to poultry, so that there is no need to sit and wonder why poultry husbandry is the Cinderella of agriculture.

Housing plays an all-important part in successful egg-production, where hens are kept on the farm, exposed to all kinds of weather. You need to copy the backyarder's method during the winter, and in inclement weather-conditions. You will never get the most out of poultry by letting them have free range in unsuitable elements, nor will you if you leave them to their own resources. The owner must do all the thinking for the hen. You need for layers a house that is well-bedded down, roomy, light, dry and well ventilated, wherein the birds can be confined on wet days. A small, stuffy house is useless, and by far the best pattern is an open-fronted intensive one wherein the birds can roost and scratch. If ordinary roosts are used then a scratching shed—deeply littered down—must be attached to it. For the breeders I would prefer an intensive house for each two pens of birds, this structure having two outer runs. The house would be divided down the centre by netting and canvas-covering to prevent fighting, or by slats nailed closely together, and in which partition there would be a door. In the breeding season eight or ten females and a cockerel would be placed in each half of the house, and each flock would have an outer run. After the breeding season the hens would be placed together, the cockerels being removed and the door in the partition hinged back. That would give me a chance to rest one of the two outer runs in turn. The cockerels would all be placed together, *i.e.* from the various pens, and so kept till required the next season, their stamina being thus maintained and reserved.

The advantages from such a house are many. There would be early eggs ready for early chicks; the owner would secure maximum returns by way of eggs during the time the hens were not

being bred from ; the hens would be controlled in all weathers, and without such controlment one could not hurry them into moult or get them through speedily. Birds kept for laying also need such quarters where they can have free range in winter on fine days only, *i.e.* the semi-intensive system. On wet days they would need to be confined to their quarters, which, being in the nature of miniature "palaces," keeps them happy and scratching in the litter. The design of the pattern matters little, and I have seen many cheaply constructed types. On one of my students' farms all the large laying-houses have thatched roofs, and were made out of sawn railway sleepers and rough timber, with wire-netting for most of the front. The principles are the things that matter most.

The method of penning adopted must, of course, vary according to the extent of the poultry section. You can, for instance, place a laying-house in the centre of a square plot and have four runs attached to it. Whilst the birds occupy one of the enclosures, the other three are cropped, and so on. One could, of course, have but one movable run, so that directly it was erected on a fresh site the old spot was dug up and cropped. Divisions to runs consist usually of wire-netting 6 ft. high.

On grass land the large, intensive laying-houses could be used without netting enclosures if desired, being placed well apart. The fowls would have free range in fine weather, and be confined to their houses when the elements were unfavourable.

The general farmer used to think that twenty-five fowls were too many for an acre of ground. What does he say to three or four hundred per acre? The person interested in egg-production will, as he becomes fully experienced, work on extensive lines. His ultimate plan will be to have two acres carrying a head of 600 to 800 layers. It would not be wise for the novice to start right away with large flocks under the one roof. He might, first of all, get to understand the handling of flocks of 25, 50, 100, and so on. The system adopted will be as already advised. There will be a run on both north and south sides, and, whilst the former is in use for six months, the latter will be cropped, and *vice versa*, for the next six months. The owner will decide the crops to grow, and as to whether they are to be harvested by the owner or the fowls themselves. Some grow thousand-headed kale and such-like greenery and turn the birds into it to eat off the crop. Whilst you may decide to run small flocks to start with, there will be no need to have a lot of small houses. You can economise by constructing a long, continuous laying-house of the intensive type

under one and the same roof. If it is built to accommodate, say, 200 birds, it can be subdivided inside by partitions at any desired distances, so that there can be within several flocks each of 25 or 50 birds, or there can be two flocks of 50 and one of 100 layers. Each bird would be allowed from 3 to 5 sq. ft. of ground-space, and each flock would have its outside run on the north and south sides at the rate of 300 to 400 birds to the acre. In the very long houses a wooden partition would be advisable, say, every 20 ft. from back to within 3 or 4 ft. of front to make the house warm and stop draughts. The fully experienced man will go the whole way, and keep his 300 or 400 layers in one continuous house, giving them half an acre enclosure on both north and south sides; but one must get to know the management of smaller flocks first, so that any symptoms of ailments can be detected.

If you decide to carry out egg-farming on extensive lines you may wonder what labour it entails. It has been proved that one good man and an assistant can look after 1,000 birds housed as above. Grain is given in the litter, but instead of wet mash the meals are well mixed and given dry in hoppers, the birds helping themselves. This is known as dry-mash feeding. The hoppers are filled once or twice a week, and are of the self-supply kind, food being always available in the trough section whilst there is any in the body of the hopper. Thus labour is reduced to a minimum, and, where large flocks are concerned and it is a question of labour, the dry-mash is to be recommended. Layers need fresh drinking water *ad lib.*, and water should be laid on where these large houses are employed to save labour. The interior fittings will include a drop-board and perches along the back, nests in a dark spot, dry-mash hoppers, drinking vessels, and grit, shell, and charcoal hoppers. It is well to keep grit, shell, and charcoal always before the birds. With the dry-mash in use you will need to bring up the pullets fully accustomed to the dry mixture. Some adopt the dry system throughout from egg to maturity, but I am rather in favour of wet mashes up to five months or so, the pullets then being taught to take to the dry-mash, which they receive permanently. In conjunction with dry-mash, plenty of raw greenery and drinking water should be provided.

In America these mammoth "henneries" are in extensive use, and when I originally boomed them here many of my critics spoke of them as the "cage-bird" system of housing; but I am having the last laugh, so to speak. In America, too, many of the breeders do not stop at egg-production, since they mate up the

layers during the breeding season. One establishment in the States boasts of about forty large houses holding an average of 500 layers each. The popular house measures 100 ft. by 14 ft. by 9 ft. high in front and 4 ft. at back, allowing each bird $3\frac{1}{2}$ sq. ft. of ground-space. One male is used for every twenty-five hens, with hatching fertility 95 per cent. On this farm there is a total of 20,000 layers, an incubator capacity of 100,800 eggs—252 machines to hold 400 eggs each—whilst a yearly output reads: 500,000 marketed eggs, 92,210 eggs for sitting, 5,000 broilers (table chickens), and 7,000 layers sold and stock renewed to replenish the farm. In England, too, many of the big egg-farmers run cockerels with their laying flocks during the breeding season at the rate of one male to each twenty females.

There is a very pleasing prospect for the man who can eventually become established on extensive lines. In time large brooder-houses for the chicks, and large incubators would be brought into play to save time, labour, and expense, but one would need to move slowly naturally, although that aim can always be kept in mind. It helps the progress step by step when the worker has his objective in his mind's eye. Where one supplies his own eggs and rears the pullets to maturity, the cost of same to the experienced rearer is not high compared with what would be needed to purchase the same number of matured pullets.

As regards breed, one might, for the reasons already stated, try a heavy breed to start with, keeping non-sitters well in the minority. Later on, with experience gained, the light breeds would come into the majority. The Black or White Leghorn, or some such light breed, would give the best results, accommodated in such large laying-houses that I have referred to. If heavy breeds predominated, one might be troubled with broodiness more than would be desirable, but you must by your selection try to establish a non-broody strain. Your trap-nesting system will show you the birds that are always going broody, and likewise those that have no broody mark against them for one and two whole seasons. These are the birds you will breed from, and these will be the mothers of cockerels used in the breeding-pens. You will keep in mind also size of egg as well as number.

You will take great care of your appliances, storing away your rearing plant when finished with for the season. After they leave the hen-coop or foster-mother the chicks will be placed at eight weeks into light movable cold-brooders or small houses. These will be taken to pieces, the parts numbered, and the lot stored when finished with. The man who cannot look after his

appliances will always be dipping into his purse, thus making poultry-farming exactly what the general farmer calls it in his ignorance, "a rich man's hobby."

To help out the autumn egg supply, you will preserve eggs in the summer when they are cheap, thereby making a good profit, as preservation methods are not costly. Water-glass is the best preservative, but for details of this branch, illustrations, and descriptions of the plant here mentioned, and so forth, I refer you to the books previously recommended.

CHAPTER VIII

OPENINGS FOR THE BUSINESS MAN

" Still he fisheth that catcheth one "

THE majority of those who are now thinking of taking small farms have had a business training of some kind or other in pre-war days. This must not be forgotten when planning the programme ; instead, as I have stated, the individual must cross-examine himself and see how far his pre-war qualifications will fit in with his schedule. It would be idle and a sheer waste for a smart business man to confine his attention to the fattening of pigs, for instance, where his business training and talent would be kept more or less in the background. Many of the landmen will be commercial travellers, for instance, and I am one who contends that a good salesman can sell anything. A person who is a smart letter-writer can also readily find customers to buy all he can offer them, whether it be a sack of potatoes or a pedigree sow.

That brings us back again to my dictum that small farming is a question of making and taking opportunities. Originality is the thing that counts, and I wish to impress upon my readers the importance of striking out in new and original ways directly they feel their feet. Do not lose that business tact that you have and that sharp eye to business, for these are valuable assets. The art of making money lies not in stereotyped channels, but in new side-tracks made by the individual.

I regard poultry husbandry, in its professional sense, absolutely ideal for the man with a business training and a genuine love of appealing to the public. Once you have an idea advertising will get it home to the public. One man, when he starts advertising for the first time, will take a small undisplayed advertisement, which is missed by many, and but casually read by others. Another man will take a reasonably large advertisement written in a strain that will make the public think he has been established for a dozen seasons instead of twelve days or weeks. That is where a business man who uses his head will have the advantage of an unskilled hand. I have often got a novice right home with the poultry public in less than a season, so that the next year he had his prices raised to the maximum, and on a par with the best

breeders. He had quality stock, I admit, but such is essential to a boom. If you push an article, and it is not what it is stated to be, that is a bad advertisement. But no farm should be established without having a good "stunt" on which to hang your hat. It may be that "all your birds are trap-nested," or "no male bird is used unless his mother laid 200 eggs or over per annum," and so on. You need to watch the leading breeders, and to be original in your "stunts," and in your forms of placing them before the public, whether by advertising or by catalogues.

Instead, therefore, of putting all eggs into one basket and into branches where there is room only for toil, and business tact lies rotting, try to mix the two. Let your business abilities have free play, and with confidence they will win through. One of our largest and most successful poultry-farms in the country had its origin in the form of half an acre of land and twenty hens. To-day it is a flourishing training farm, the lady-owner charging £150 upwards per annum for pupils undergoing a course of training. You might be loath to take a pupil until you had become fully established, but, provided you could teach the student his business, he could come at any time. If your capital was short you could always keep your farm small but representative, and train pupils, they paying you for training and providing you with free labour. A pupil or two will often help you over the gate just as you are getting low in cash, but have turned the tide, and you would see the opening if your business acumen was given full scope for its activities. You might in pre-war days have had some such trade that fitted in with poultry, and you might take pupils for that if a little help was needed financially.

In the sale of sittings, chicks, and stock birds the business man has a very fine field for operations. One of his early moves will be to establish himself as the local "poultry expert." He would naturally be a prominent member of his local society, whether it was interested in rabbits, poultry, or pigs, so long as he kept such stock. He would go as far as entering some of his stock at the local shows, and secure whatever custom he could in such ways. Once he established himself in the day-old chick trade, he would find ample scope for his talent. The leading corn-merchants in the neighbourhood would be provided with a foster-mother and chicks for a window display, and would take orders for chicks inside, on commission, from their weekly customers purchasing poultry foods, etc. Country travellers in poultry foods might be persuaded on terms to distribute leaflets to their customers and take a commission on orders secured. The local

station might have a permanent sign placed in a conspicuous position, and advertising the farm, so that all the locals would talk about the poultry and their owner. The sale of stock is the snowball system over and over again, and customers come year after year and recommend their friends if they are satisfied.

The sale of stock also enables one to make the most out of surplus specimens not needed. For instance, plenty of people will pay any price for a hen with a brood of chicks, and here is the business man's opportunity of disposing of his surplus adult stock. As these hens, especially marked for disposal, go broody, they can be dispatched as mother-hens at a high fee with a dozen day-old chicks each. This is but one method, and of course, if you are continually grading your stock in this way, you are leaving yourself with the "best selected."

We can take pigs in the same way. It naturally pays to sell pigs for stock. If you buy a tip-top boar and keep him not only for your own use, but also to hire out to other owners of pigs who care to engage his services at your stud fee, you will be making friends with local pig-keepers, and that means business. A stud animal, whether dog, pig, goat, or rabbit is one of the best advertisements you can have. It compels attention, and raises the prices of one's stock. But the animal must be a high-class one naturally.

The business man, too, will see openings outside his farm. It may so happen that a man, when once established, will find the demand for a certain class of stock far in excess of what he can supply. One man would refuse such orders, whereas another will get busy interesting local producers he may know. We will call this out-farming. Friend Smith may agree to take a sow and rear the litter, with all food supplied, for the reward of one of the young pigs as his own or for an agreed payment. Friend Jones may agree to rear 100 pullets if all is found for him and he receives his bonus. The advantages are that the farmer has no rent to pay, and yet is able to meet the demand for his stock. Customers, too, who have bought eggs or chicks, will readily sell the cockerels at a price that will enable the farmer and owner of the strain to buy them in and sell to *his* customers at a profit.

The business man, as a "key" man, will find plenty of open fields in which to sow his talent and find customers for his produce and stock. It is because of the great difference between one man's capabilities and another's that I place little reliance on profits from the land. One man will make pounds and the other pence, despite the fact that both had the same chance. The one man, however, saw and took the opportunities; the other failed to.

CHAPTER IX

"TOP" AND "BOTTOM" FRUITS

"Every age confutes old errors and begets new"

THE art of securing a living from the land rests in utilising one's space to the fullest extent. It is, after all, what you put into or on your land which counts in the matter of returns. The thing to remember is that there is no *standardised* farm, nor would I attempt strongly to advocate the same. Helmsmen vary so much in capabilities and so forth that the correct line should be for the individual to look around and see what best suits his purpose.

On one farm there may be a well-arranged grass orchard ; on another it may be absent. One man may, sooner or later, take it into his head to have a plantation of small fruit-trees ; another may patronise the larger fruits, whilst a third may lean towards market-gardening, and leave the other lines alone. As far as possible, the individual should see where he can so arrange that two crops may be taken from the same ground. He may, at the start, have his hands too full to realise his ideal, nevertheless if he includes his plans in his programme there will come a time when he can go ahead in a small or large way.

What can be done with a grass orchard which the owner finds fully established on the farm of his choice by way of double crops ? That will be one of his problems. He may decide to hand it over to ducks, and in this his decision may be helped by the knowledge that ducks do not call for expensive plant. If the orchard is a small one he may decide to place round it a boundary of wire-netting about 18 inches deep. There will be no gates to open and close, and the operator need only step over the netting when going to and fro. Perhaps the ground will be given over to breeding stock, being divided up into smaller enclosures or runs. Each run may measure 20 yards square, and be divided in the centre, so that one half can be rested whilst the other is employed. In all such partitions and boundaries low netting—18 inches or so deep—will

suffice to keep in the ducks. A barrel or a roomy box-arrangement will suffice as quarters, being well ventilated and deeply bedded down with the roof tarred and felted to keep out the rain. Four or five ducks and a drake will be accommodated as breeders in each enclosure, and the trees will provide the desired shade. Many will dispense with housing during the breeding season, finding that ducks like to sleep out at night and are quite happy when dropping their eggs on the grass-land. If desired, all the ducks may be run together after the breeding season, the drakes being killed off or included in the flock as desired. The wire-netting enclosures could then be taken up and stored till the next season. Perhaps the owner may prefer to divide the orchard into two and run therein a flock of twenty-five or more breeding ducks headed by four or five drakes, it being remembered that ducks and drakes can be placed together without the squabbling taking place that is noticeable with rabbits, hens, and so forth. One half of the ground would be in use whilst the other was resting. The breeding ducks would supply eggs for sale as sittings, or eggs for the broodies and incubators to produce day-old ducklings for sale or for rearing on for stock or table purposes.

There is in most places a good demand for day-old ducklings of table breeds which the public buy to fatten up for the table. And the owner may decide to fatten up some of the ducklings for the market, reserving part of the orchard or other grass-land for the purpose. His system will depend upon the extent of his trade and the plant at his disposal, also the size of the orchard or plantation. Netting 12 to 18 inches deep will be suitable as divisions and boundaries to runs. Where table ducklings are being reared it is well to give the ground a rest the next season, a point to be remembered, and if rested longer so much the better should the ground be heavily stocked. Ducklings are hardy and easy to rear once they feel their feet, and after a fortnight can do without hen or foster-mother, which is a great consideration. If hens are used to hatch out the ducklings, the broods of several can be amalgamated until each hen has from twenty-five to fifty under her care, being provided with a roomy box. Or foster-mothers can be used. At the beginning of the third week hens or fosters can be dispensed with, and the ducklings provided with boxes as quarters. Large packing cases each 30 inches square—ventilated and provided with a hinged door—make good shelters. A 50-yards roll of netting will make an enclosure for 100 young ducklings, and to start with several boxes can be placed therein as shelters, the number being increased as the ducklings get older, to prevent overcrowding.

The netting is staked at intervals, so that at the end of each week it can be easily removed to fresh ground. At six weeks old the 100 flock can be reduced to 50, and placed in a larger run of 25 yards square with several boxes installed therein. The course of fattening should then commence, and at nine or ten weeks they should be ready for killing, averaging 5 lb. or more each. At the close of the season the runs and coops are removed and stored away till required the next year.

Table ducklings need no grain, or swimming water ; separation of sexes is not called for, as the drakes do not fight with themselves or the females ; they are ready for the table sooner and make heavier weights than table chickens ; outlay for plant is low ; cheap, bulky, and coarse food-stuffs can be fully utilised, as can green-stuff ; weaning takes place very early ; rapid turn-over is possible in the season, as ducklings come to market quickly ; low boards can replace netting for divisions in houses and runs, whilst the ducklings are hardy and easy to rear. These are but a few of the advantages which compel attention.

At first the small farmer will be content to engage in the production of table ducklings in a small way. He will be well advised, however, to study the many systems carried out both in America and here. In the States as many as 70,000 to 115,000 table ducklings will be marketed from one plant in a season, and it is there contended that a unit for one man should be fifty breeding ducks which will supply three 200-egg incubators with eggs continuously and produce 2,000 to 3,000 ducklings each season. In my *Duck-keeping on Money-making Lines*¹ the numerous approved systems are dealt with in detail so that those interested can read all about modern methods. Whilst it may be wise at the start to handle stock on a small scale, the small farmer will be wise to study up the more extensive systems, so that they can be adopted as time goes on. Large incubators and large brooder-houses will be found essential sooner or later, and they will save much money, time, and labour. The brooder-house to take 500 or 1,000 chickens or ducklings from a day old upwards is simple to operate, and its advantages are obvious. Instead of having a lot of mother-hens each caring for a dozen chicks or less, you will have a house divided into many inside sections—each with outer run—to take a flock of 100 chicks each. The chicks retire for warmth to the hover and nestle underneath the hot-water pipes. The same idea can be carried out for table ducklings, there being one con-

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tinuous house with a 3-ft. walk down the centre, and pens on either side each with an outer run. Inside pens may be 6 ft. by 6 ft. to start with, increasing gradually to 12 ft. by 6 ft. for the older ducklings, each compartment taking up to fifty ducklings. These pens are divided up by boards some 18 inches deep, and the floor is deeply bedded down. The outer runs are usually of earth, and are regularly scraped and brushed to remove the manure. At the end of the fattening season the runs are cropped with rape, lucerne, oats, maize, barley, mustard, vetches, rye, or the like to sweeten the ground ready for use again. This branch can be regarded as a seasonable one or extended accordingly. If breeding stock are not kept it can be carried on by the purchase of hatching eggs or young ducklings, say three or four weeks old.

As showing what can be done on a small area, I may say that the Aylesbury ducker will rear in a season as many as 2,000 ducklings on an acre of ground. In America 5,000 table ducklings have been reared on less than two acres.

The grass orchard can be turned over to the breeding-pens of poultry, which draws attention to the importance of planting fruit-trees of the large kind in all grass enclosures or runs used for poultry.

The orchard or fruit-plantation may, on the other hand, be devoted to the raising of table chickens, either in a small way or on a system. One method I have in mind enables the operator to rear fifty chickens per week at a profit of 1s. per head on an acre of ground. The plant consists of three 100-egg incubators, ten foster-mothers (12 ft. by 3 ft.), fourteen cold-brooders or small houses (12 ft. by 3 ft. 6 ins.) and sundries costing in pre-war days £102. Fifty pounds were allowed for food, eggs, etc., for seventeen weeks before any chicks can be sold, making a capital of £152 in all. For the first seven weeks the chicks are reared intensively in lots of fifty in the fosters, and for the next seven weeks in the cold-brooders in lots of twenty-five. The cold-brooders are moved on 3 ft. 6 ins. every day to provide fresh ground. One incubator is started on the same day each week, one foster-mother prepared for chicks each week after the first three weeks, and two cold brooders got ready after the first ten weeks. The eggs are purchased for the machines, although, where possible, one would of course keep breeding-stock. It has been proved that 3,000 to 4,000 table chickens can be reared on three to four acres of ground in a season, the plot being rested the next year and another site chosen. This branch is a special one, like that of table-duckling rearing, and is best left until the operator has gained full experience in hatching and rearing. A small start can of course be made, and a profit

can be realised on the surplus cockerels from ordinary broods, the pullets from which are kept on for stock. Where there is a surplus of labour the small farmer can hand the development of this section over to another person.

Early hatches are essential to catch the best spring markets, necessitating the mating up of the breeding-pens in November and December and the starting of the incubators in December. After eight weeks in the fosters or brooder-houses the chicks could be run out on the grass for a fortnight in cold-brooders or houses, when they would go into the fattening coops for a fortnight, thus being ready for market at from twelve to fourteen weeks, and scaling 3 to 4 lb. The fattening coops will be placed in any shed or outhouse, and will measure 6 to 7 ft. long, 20 ins. deep, and 30 ins. high. The front will consist of spars placed 2 ins. apart, whilst the floors will also be of spars $1\frac{1}{2}$ ins. wide and $1\frac{1}{2}$ ins. apart. Underneath a drop-board will be arranged to catch the droppings. Then the whole will be divided up into three sections by means of sliding divisions, each compartment taking from four to six birds. When placed together all stock fatten quicker and eat the more readily. A wooden trough (movable) will be put along the front of the coop at the bottom to hold the food, but no drinking vessel is needed, as water is not given to birds being fattened when in the coops. For early work outhouses for rearing and for fattening will be most useful. The fattening shed can have the coops described fitted round the walls and up and down the centre of the shed, and in the summer the coops can be moved out into the open if protected from the rain. The centre two spars of the front are made to slide up to enable birds to be put in and taken out. The darker and quieter the shed the better the birds will fatten. Both cockerels and pullets can be fattened, or the latter, as ascertained, can be run on for stock or laying, the cockerels only reaching the market. The operator must adopt that system which gives him best results. He can fatten cockerels in sixes or dozens in a small wire enclosure, or he can take the birds straight off the range and place them in the coops inside the fattening shed for a final course.

Maybe the rabbits will claim the orchard, being placed out in wire-bottomed hutches which will be moved regularly to fresh grounds. From mid-April to the end of September the rabbits can be put out to graze, and they can be very economically reared. A coop 6 ft. by 3 ft. will be large enough for a litter of six young rabbits from weaning-time (six weeks) up to three months, and then three up to any age. The coop can be moved several times

daily, except in wet weather, but the same ground should not be used more than, say, twice in one season. A foster-mother will make a good outdoor rearer, and it will be profitable to put the young rabbits out to graze, housing the breeding adults in an out-house. Each doe can accompany her litter on the grass until weaning takes place. Part of the coop should be boarded in for shelter, and the interior fittings should comprise a bench for the rabbits to rest on, and a wire-netting feeding-bag some 15 ins. square to hold hay or greenery. Hand-feeding will be reduced to a minimum with outdoor grazing.

Goats are not ideal animals for orchards, being destructive—a point one must allow for.

The claims of the pig upon the grass-land in orchards must not be overlooked. The idea must not be to fatten the pigs, but rather to economise in feeding. Thus we must use the right class of animal. Pasture is best suited to the bacon pig, which is allowed to pass through the store stage out at grazing, a three weeks' course of fattening on concentrated food-stuffs being adopted prior to marketing. The pork pig is best sty-fed. In-pig sows can also be placed to advantage in orchards, being removed to their sties a few weeks before they are due to farrow. Gilts and pigs that are being reared on for stock will also be suitable for grazing to save the food-bills. When in the orchards small coal or ashes should be provided, and if the grazing is poor greenery or roots can be provided daily, also hand-feeding can be added if condition warrants it. Any dry, well-bedded shelter will do for the pigs' quarters, and to prevent them from breaking bounds there can, if necessary, be an outer boundary of netting fastened round posts with a strand of barbed wire fixed for safety near the bottom. Wattle hurdles will also make a good boundary.

Where the small-fruits are concerned, such as gooseberries, currants, raspberries, and the like the ground can be used for winter greens, potatoes, or lettuce or any green crop, or it can be handed over to stock. Chickens up to about three months old can be run among these small trees, as can ducklings up to almost any age. Ducklings and ducks are not so destructive as chickens, as they do not scratch, and when the crops are well up they will be found wonderful slayers of slugs and pests. Strawberries and very young crops can be covered to protect them from the stock, but, seeing that ducklings can be kept within bounds by boards or netting only 12 to 18 ins. deep, it is not a difficult matter to control their movements. What is more, if an enclosure is attached to their house they can be kept in when they are likely to spoil

any crops. It is surprising how useful in a market garden young ducklings will prove, and what little harm they do when the crops are well up. To help matters, the ducklings can be given plenty of greenery, and a feed of it ere they are let out to wander among the crops. In a potato plantation you will find ducks in their happy element, clearing up all snails, slugs, and worms that come their way, all eyes on such food rather than on the growing vegetables, etc.

So long as one brings in a " bottom " crop wherever it is possible on ground bearing a " top " crop he will be considerably increasing his returns. It is for the man on the spot to see and make use of the opportunities presented.

CHAPTER X

FREE BOARDERS

" Step after step the ladder is ascended "

BEFORE the farm takes a definite shape the small farmer may be tempted to try certain side-lines which can be run economically, and which will fit in with his individual environment. His special circumstances, all taken into account, will decide the extent of the particular branch.

Take the case of the goose which lays from thirty to fifty eggs in a season. That will not pay as regards egg-production alone, so we must provide cheap feeding and make full use of the eggs laid. The goose is essentially a grazer, but is not particular what class of grass it feeds on. It has been stated that ten geese will eat as much grass as a cow, so that any one with free range to offer, or a common — woodland, stream, ploughed land, or stubbles — will find the goose come nearest to a free boarder or self-supporter. From spring to autumn an evening meal of soft food will suffice, and occasionally a little grain for a change. Too much hand-feeding will spoil the foraging capacities, as it will with ducks and turkeys. In the winter more food is necessary, but as the geese are not in lay coarse and cheap ingredients can be used. Any dry, well-bedded, and nicely ventilated house will do for quarters, and the goose will be found easy to manage. As with ducks, swimming water is an advantage for breeding stock, but not a *sine qua non*. Starting to lay in February, the eggs will be laid in two batches. After the first lot the goose goes broody, but she must be shut up in a box or coop for a few days, when she will start her second batch of eggs. These can be given her to hatch out when she again goes broody, ordinary hens being given the first lot of eggs to incubate.

The usual plan is to run the adult stock on year after year, rearing the goslings each season for market. Three females are usually mated to a gander in December, and from such a quartette as many as 80 to 120 goslings have been marketed in one season.

As far as possible you must select adult stock of two or three years old, as young ones do not give such good results. Four or five eggs will be sufficient for an ordinary hen to cover and ten or twelve for the mother-goose. Taking thirty days to incubate, the eggs should be damped with warm water towards the end. Once over the first ten or fourteen days goslings, like ducklings, soon romp along and during that period the mother is best "cooped." Grit, shell, and charcoal will always be available, also drinking water.

There are three classes of goslings. "Green" geese, after the first week, are usually reared entirely on grass and marketed at about twelve weeks old before they start to moult their wing feathers. "Stubble" geese are hand-fed for about a month, and then pass through the grazing stage until they are placed on the stubbles to clear up fallen grain, when they are marketed. "Christmas" geese leave the stubbles and go back to grazing, being penned a few weeks before Christmas and fattened up, receiving two or three meals *per diem*.

So long as it is dry any rough shelter will do for the goose, the floor being deeply bedded down. Sections at the back can be arranged on the floor as the laying nests, and the goslings will be quite happy sleeping out of doors or under a rough open shelter. Little need be spent in the way of plant.

The turkey is another splendid free-ranger, and the laying period is from March to May, when from thirty to fifty eggs may be laid. If the breeding stock is of high-class blood these eggs fetch very high prices for sitting purposes. From four to eight hens will be mated to the male bird, and, as the eggs are laid in two batches, the first lot of eggs are placed under ordinary broodies, the turkey-hen taking care of the second batch like the goose, although many place all the broods of chicks with the mother-turkey at the close. An ordinary hen will cover six or seven eggs, and the mother-turkey fifteen or sixteen, whilst the eggs take twenty-eight days to incubate. You need vigorous parent stock in turkeys, and they will be run on whilst the youngsters are fattened up for Christmas.

Any outhouse, barn, or shed that is dry, well-ventilated, light, and deeply bedded down (with straw, peat-moss, dried leaves, bracken, or the like) will be suitable, the perches being nice and high. Turkeys of all ages are fond of roosting out in the open—in trees, on gates, and the like—but houses should be provided, these being well aired by day and well ventilated by night. Ducks, geese, and turkeys will give no trouble as regards housing so long as the principles advised are carried out. Low wooden partitions at the

back of the house with straw lining will act as nests, and a few barrels with material therein can be left here and there near the house if desired. Turkeys like to steal their nests, so that the orchard, the hedge-row, and odd places must be watched in the laying season.

Given a mixed range of orchard, pasture, woodland, and banks the turkeys will miss little by way of fallen fruit, berries, nuts, grubs, insects, and greenery, and only an evening meal will be necessary from spring to autumn—sometimes mash and sometimes grain. But foraging must be encouraged, and too much hand-feeding keeps the birds near their quarters “waiting for more” instead of going far afield. Grit, shell, charcoal, and drinking water should always be kept available.

The turkey-hen will go broody as a rule after laying her first lot of eggs, when she must be shut up in a coop, like the goose, to stop the fever. When she is given eggs her sitting-box (or barrel) should be protected so that she will not be annoyed. The turkey chicks are more difficult to rear than goslings or ducklings, but strong, vigorous parent stock will help matters. After the eggs have been incubated seven days one or two hens' eggs should be placed with them, so that the ordinary chicks that hatch out will teach the turkey chicks how to pick up, at which they are rather slow at first. Rain storms must be guarded against, and the chicks need to be regularly dusted with IZAL insect powder. Move the coops daily to fresh ground, and keep the grass cut short, as wet grass is harmful until the chicks are strong on the leg. From six to eight weeks' care is necessary, as the young turkeys “shoot the red” and a tonic will help matters. They soon go ahead with this over, and when in the fields rough shelters with perch accommodation will do for quarters, or perches can be provided in open sheds.

After foraging and light hand-feeding the turkeys can go on to the stubbles; about five or six weeks before they are required for table they should be placed in smaller enclosures and be fattened up. A large barn or outbuilding will do well for their quarters, if available. With turkeys an occasional change of males will bring in the much-needed fresh blood.

The guinea-fowl is another free boarder, so to speak. Being inclined to stray when newly purchased, it is best to start with sittings and rear the chicks, unless the adults are confined for a time to get acclimatised, being allowed only short outings. There is a good demand for sittings, also stock birds and for the market. Small eaters, the guinea-fowl will need but one meal *per diem* from spring to autumn, this being given as they return to roost

in their house or in the trees by the homestead. Laying commences about February and ends about September in the best stock, each hen laying from eighty to one hundred eggs or more. The hens will lay in the hedgerow, nettles, or undergrowth, and must be closely watched, the eggs being removed unnoticed by the hens by means of a spoon, the nest being undisturbed and a dummy egg being left always there after the first removal. Collect eggs daily, and keep a strict look-out for the nests.

Two, three, or four hens may be run with each male, and ordinary hens are used as broodies, the guinea-hen being unreliable. The eggs take from twenty-six to twenty-eight days to hatch. Once on their legs the chicks make good headway.

The laying duck is coming into its own these days, and has merit to support it. I have in mind the record of 1,631 eggs, averaging 31 ounces per dozen, laid by six Runner ducks in twelve months in the laying contest at the Hawkesbury Agricultural College, N.S. Wales, and many other fine scores, as, for instance, a Buff Orpington duck which laid 137 eggs in as many days. The duck provides the small farmer with all the lines given him by the hen—sittings, day-old ducklings and stock ducks, and new-laid eggs. Water is an advantage for swimming exercise, where breeders are concerned, but not a *sine qua non*, as so many believe. You will get fertile eggs on grass range without swimming water, and more so with any of the light "land" breeds like the Runner. Fertility is much higher with ducks' than hens' eggs on an average for the season, and ducklings and ducks are easy to manage. What is more, you can run a large flock of layers together with males—one drake to six or more ducks—at the head, thus securing fertile eggs for incubation or sale. With a large flock on range only a sleeping house will be necessary, and labour is reduced to a minimum, as from spring to autumn the ducks will be out foraging from morning to night, when an evening meal can welcome them home.

The eggs take twenty-eight days to incubate, so that, if an incubator is used, you will not mix hens' and ducks' eggs together, as the former take twenty-one days. You will master all there is to know about setting a hen and managing an incubator, because you will need such experience for many of the stock you will keep. An ordinary hen will be used as the broody, and she will cover eight to ten ducks' eggs. If the latter are placed in a machine then a lower temperature will be necessary than for hens' eggs. One usually secures a temperature within the incubator of 102° for the first fortnight and 103° till the close.

As regards rearing, overcrowding and over-heating must be

avoided, and there must always be shade from the hot sun and shelter from rain-storms. The foster-mother can be run at 90° for the first two days, 80° the next two, 75° the following three days, 70° from eighth to tenth day, and 60° up to the fourteenth. After a fortnight it is surprising how the ducklings romp ahead without any natural or artificial heat. Roomy boxes will take the ducks along from the second week, although it is well to let them have the unheated foster with short outings daily for a few days to get hardened.

Many small farmers will find themselves near a common or a stream, or will find a good pond on their own estate. It would be idle to deny the duck her legitimate claim to such ideal environment. A pond can be utilised in many ways, as, with a row of breeding-pens, each flock can take it in turn to have range and the use of the pond. Ducks' eggs travel well, but ducklings need to be dispatched as soon as they are out and dried. The duck-keeping profession is on a par with that of poultry-farming.

The goat qualifies as a free boarder, because it can be tethered out on pasture for the greater part of the year, when it will find a good deal of its food. It can also be tethered along the roadside to secure free meals under the care of the farmer's little son or daughter. Or it can be tethered in season in disused poultry-runs to eat down the grass; more so where dual pens are used for each flock, the birds occupying one whilst the goat eats the grass in the other. It is a consumer of waste, and will call for garden refuse and so forth. Two goats will be necessary to supply milk all the year round, the second being purchased on the point of kidding when the first is drying down. Surplus milk will come in useful for the rearing of other young stock.

Any outhouse or shed will do for the goats' quarters, and where only one is kept the animal can be allowed to run loose within, and have an outer attached yard, if possible, for exercise. Two goats can also be allowed to run loose within the shed, although it is well to have separate stalls in which each can be chained up at feeding time. If stalls are fitted they will be 2 ft. to 2 ft. 3 ins. wide, and the wooden partitions need be but 3 ft. 6 ins. long, measuring, say, 4 ft. 6 ins. high in front, sloping to 3 ft. towards rear of goat. Inside the stall should be arranged a movable slatted floor raised off the ground and along the back wall must be placed the feeding receptacles—a hay-rack, and a manger. In the latter will be accommodated a bucket for food, and another for the drinking water, and a section for the rock-salt. In one of the posts within the stall will be fixed an iron, to which will be

fastened the 10- or 12-in. chain secured to the goat's collar. This chain will carry two swivels to prevent accident from choking due to the chain getting twisted and shortened. The hay-rack can have wooden, cane, or iron spars arranged about $1\frac{1}{2}$ to 2 ins. apart, and can be movable.

A structure 7 ft. long by 6 ft. deep and sloping from 7 ft. 6 ins. to 6 ft. in front will house two goats, and any existing lean-to shed can be converted readily enough. If one goat only is kept, a sleeping bench can be provided at one end and the stalls dispensed with. A solid earthen floor to house will do, ample bedding being used and soiled parts being replaced daily. Any dry material from straw down to sawdust can be utilised. If the floor slopes from back to front, and has a channel outside to carry off the urine to a bucket or catchpit in the ground some distance away, so much the better.

October to December represents the usual mating season, the kids appearing from March to May—period of gestation being 147 days. The early kids are the best for stock, and the late kids help to maintain the milk yield. But goats will mate twice in a season, although during the warm summer season is irregular, and a he-goat is best kept with the she-goat to serve her at the right moment. From September to January season may be expected every three weeks, longer till March, and until August season may not appear, or one only. In the mating season conception is more certain.

One kid may be given, but at the second kidding there may be two, which will be recorded subsequently, although up to four is possible, but uncommon. About a month or six weeks before the goat is due to kid she should be dried down, milk-producing foodstuffs being withheld, and milking being reduced to once daily, and then every other day, and finally omitted. If the milk is desired the kid will be separated from the mother when born, and be hand-reared; but if the kid is required for stock it will get along better on its mother's milk. But one can milk the goat and leave the surplus for the kid, the latter about the fourth week being separated from its dam during the day-time and taught to eat dry food. The goat's milk will then be available for the house.

When tethered out on pasture goats like plenty of fresh bites and six goats to the acre of good land will be sufficient. Pasturing may run from March to September, and a portable shelter can be kept near the tether for protection on wet or cold days. In the winter the goat will be kept in its house, being stall-fed and allowed out for short periods in nice weather for exercise only. One can,

of course, keep the goat stalled in all seasons, as is the case with "town" animals. If kept more or less to their stalls the hoofs will need to be regularly examined and pared, or they will grow to an abnormal size and turn up at the ends.

The milking of the goat is very important. If stripping is adopted the forefinger and thumb are placed tightly round the teat close to the udder and pressed downwards to the tip of the teat, the plan being repeated. Nievling is the commoner method. One teat is taken in each hand and firmly but gently pulled down, the fingers being closed upon them at the same time so that pressure starts with the first finger and ends with the small one. The hold is slightly relaxed whilst each hand is quickly raised and the process repeated. A combination of the two, in order mentioned, is often resorted to. Milking must be done quickly and cleanly—what is left behind being taken back into the system and not given at the next milking-time—and regular times must be adopted. Two milkings *per diem* between 7 and 8 a.m., morning and night, will suffice, except for heavy milkers giving five pints or more daily, for which a third milking at noon is added. The goat can stand on a raised bench to be milked, being given a meal to keep it occupied, and milking is best done from the side.

Quantity of milk will depend upon the class of goat. Three pints daily may be mentioned, and lactation will last from six months up to a month before kidding again, according to breeding. A grand total of 400 pints may be given in nine months, with the greatest yield just after kidding.

The products of the goat are identical with those of the cow—milk, butter, cream, cheese, and meat. The milk is sweeter, richer, and thicker than cow's milk, and can be watered to make it go further for household uses. Being more digestible than cow's milk, it is often recommended by doctors for infants that are not thriving. Again, tuberculosis is not known to the goat, whilst a third of our milch cows suffer from this disease. At convalescent homes and seaside resorts (particularly if consumptives visit the latter) goats' milk has a ready demand. When taken into the dairy the milk should be strained through a fine sieve and then placed in the open air to cool or in a refrigerator.

Goat's butter is colourless, and does not keep as long as cow's, although it goes further. Having strained the milk, pour it into shallow receptacles, and leave for twenty-four hours, for cream to rise. Next place the receptacles on the kitchen-range away from the fire for a prolonged scalding. When the surface crinkles, remove to the dairy, and the next day remove the cream and

place it in a basin, standing this in turn in hot water until the cream is warm, then pour it into a glass bottle. Cork the latter and shake it to and fro until the butter is churned—about thirty minutes. Strain off the sour milk and remove the butter-milk, and the cork can be removed occasionally to vent the bottle. After the butter has formed and the butter-milk has been poured out, several lots of fresh water can be poured in and out. Tie the butter in a cloth (securing at each end) and place it in cold water, allowing the tap to drip. Then press the butter to remove the butter-milk, salt it and pat well ere placing it in a print or mould. Goat's milk or butter can be coloured by the addition of a little annatto, this being added in the case of butter ere the cream is churned. In summer the milk should stand only twelve hours before and after scalding, instead of double the time as above mentioned. Milk set to cream is best kept at a temperature of from 50° to 55° F. A proper churn can be used instead of the above if it is warranted. If the cream is kept until a day set apart for churning, it should be stirred each time a fresh supply is added.

In my *Goat-keeping on Money-making Lines*¹ I give very many methods of making cheeses. Here I give that for a Wensleydale goat's cheese, which my friend, Mrs. W. B. Goode of Aldborough Lodge, Boroughbridge, Yorks—the well-known breeder of pedigree goats and poultry—has sent me recently, together with a sample of the cheese so made. It was one of the best goat-cheeses I have tasted. Take ten pints of milk, skim off the cream and heat to a temperature of 95°, pour it to the milk and heat all up to 85°. Mix a quarter of a teaspoonful of cheese rennet with a little water and stir it in the milk for three minutes (gradually from a teacup), then let it stand for one and a half hours, the basin being covered with a cloth to prevent its rapid cooling. Cut up the curd with a large knife into small dice and leave for five minutes. Drain most of the whey off by placing a square of muslin over the curds in the basin and pressing the whey into a cup. Heat the whey up to 130° and pour on the curds until it is 95°; cover with a cloth and leave for ten minutes. Then pour all into a large square of muslin, tie up, and hang to drain for a quarter of an hour; cover with a cloth. Take muslin down, cut up the curds, tie up again tight, and hang up again for another fifteen minutes. Cut up and hang up to drain three times with fifteen minutes between. With the curd dry and dripping finished, turn into a basin, crumble up with the hands, and well mix in $\frac{1}{2}$ oz. of salt. Put in a cheese

¹ Published by Messrs. George Newnes, 8-11, Southampton Street, Strand, W.C.2. (3s. 11d. post free).

mould and press with a 2-lb. weight. Next day turn with weight on the other side. Third day turn out of mould and paste muslin round cheese, using flour and water paste. Turn every day for three or four weeks to ripen, keeping it in a room of 60° temperature. A round mould 6 ins. high and 3½ ins. across will do, and this cheese will keep several months in a cool place.

But for the dreaded Isle of Wight disease, which wipes out entire stocks of bees, bee-keeping on an extensive scale would be very profitable amid suitable environment. The profit from a hive may be placed at from 10s. 6d. to £1 1s., but returns depend upon good weather during the flow of honey, sound methods of management, and locality as applied to the flowers, blossoms, and so forth available. Bee-keeping should be taken up in a small way until experience has been obtained, when the apiary can be extended. It must not be regarded as an easy and safe specialty branch, because there are many factors to turn it into a lottery not the least being the Isle of Wight disease.

Bee-keeping is a complete and deep study in itself. The would-be specialist, ere he starts, is advised to study the habits of the busy bee, the parts and workings of the modern hive, the wintering of stocks, and the blossoms yielding the best flows of honey. Success depends upon a thorough knowledge of these essentials. When the honey has been obtained there must be the process of extraction and grading. Honey varies in colour and quality, and each comb must be held up to a good light to see if the honey therein is of the light or dark shade. The former is the more valuable, and should be kept separate. Simple appliances are made to extract the honey from the combs, the capping from each comb being removed with one cut from a sharp knife that has been heated in hot water. With the honey drawn off into a "ripeners," and allowed to stand in a warm room for seven days, it will be found that the thin honey has come to the top. The good honey can be drawn off from the bottom, leaving the inferior grade, which can be fed back to the bees.

CHAPTER XI

BRITISH BACON FOR BREAKFAST

"Pigs grow fat where lambs would starve"

IT would be an incomplete small farm or small-holding if the pig were not given a place thereon. As a converter of waste into valuable meat, the pig takes some beating, and with the sow prolific rapid production is possible. From 1914 to 1918 our so-called Government experts have been sitting on the pig, preferring to feed the nation on Yankee "Flu" bacon, but the pig will come back. Little is wasted where pigs are kept, whether it be on the stubbles, in the orchard, in woodland, where fallen fruit, acorns, horse-chestnuts, and beech-nuts are available, at threshing-time, around the homestead where in seasons loose corn is about, or as regards "remainders" of roots and greenery from other livestock. Where, too, butter and cheese are made, there will be the skim milk, whey, butter-milk, and the like. If the farmer makes a specialty of cows his pigs will be increased to use up the waste and by-products.

A sow may have up to twelve or more little pigs in each litter, and five or six families in three years, and the plan adopted must be left to the individual. One or more in-pig sows may be started with, the young pigs being sold off at six to eight weeks, or one or two being reared on for pork or bacon. The sows would be kept for stock and be mated up again and again, the same principle being carried out. After eight or more litters the sow will be half-fatted and marketed, thus giving a good return at the end of her service. Porkers may be marketed at 85 to 95 lbs. alive, when they are from four and a half to six months old, and will best be sty-fed, whilst those for bacon will be run on from 120 to 190 lbs. deadweight, needing two months' longer feeding. To cheapen the cost of feeding, bacon pigs, those being kept for stock, and sows (from the weaning of one litter until the next is expected) can be placed on pasture or range. Piglings fatten better when two are put together as there is competition for the foods, a point to be remem-

bered. Again, partly fattened pigs can be bought and finished off if plenty of waste is available. Each sow will farrow as nearly as possible in February and August—twice yearly.

Be the sty what it may, it must not be dark, damp, cold, or dirty, nor must the floor be of material that strikes cold or retains the urine only to throw back offensive smells. A high and dry location is advisable, with the floor higher than the level of the surrounding ground. Doors, runs, and windows should be on the south side, and a roomy sty measuring 8 ft. square will be large enough for a heavy-breed sow, boar, or litter. Such a structure would take up to a dozen little pigs and three or four animals being fattened. The run or court can be the same width, and twice or thrice the length of the house. Choice of material will depend upon whether the structures are temporary or permanent. If the property is freehold nothing can beat a concrete erection. Local conditions will often decide the choice of materials; for instance, the floor may consist of railway sleepers that have been well tarred and the joints cemented. The sides may be of slabs cut from outside of fir and other trees placed close together, with galvanised zinc inside to prevent draughts. The run may be of such slabs also, placed a little apart and 4 ft. high. The roof may be thatched, and every small farmer will master the art of thatching and the erecting of sound structures from cheaply procured substitutes if his capital is limited. With pigs on range any outhouse can be converted, and in the winter a deep warm bedding will be required. Even in the choice of litter one's purse can be saved, for, if straw or peat-moss is not available, coarse grass, bracken, rushes, hedge-trimmings, and dried leaves can be cut or gathered in season, dried, and stored for future use. Drainage should be carefully carried out, as utter cleanliness will ward off some of the more serious ailments.

Having started in quite a small and primitive way, the time may come when a modern piggery will be erected. There will be a long, continuous house with the interior divided up into sties all under the one roof, and with a walk at the back. The drainage will be linked up with a cistern let into the ground at a distance, and for those who intend to breed pigs for sale and to keep high-class stock such a structure will be most useful. Apart from the outer walls the interior divisions will be about 4 ft. or so high. In my *Pig-keeping on Money-making Lines*¹ will be found diagrams of an ideal continuous piggery, with full description and measure-

¹ Published by Messrs. George Newnes, Ltd., 8-11, Southampton Street, Strand, W.C.2. (3s. 11d. post free).

ments. Such a structure will reduce labour to a minimum, and the sties can be cleaned out under cover, which is a great advantage in wet weather. This great advantage is also realised where large chicken brooder-houses and laying-houses are in use.

Early mating should not be practised; young sows (or "gilts") should be twelve months old and boars eight or nine months. Selective grading will pay, only proved sows giving large litters, and, what is more, *rearing* them, being kept on. The sow should be taken to the boar in the cool of the morning or evening, and the services of a high-class male should be secured. As time goes on one might invest in a tip-top pedigree boar and utilise his service for the "home" sows, also charging a fee for visits from other sows. Season may appear at intervals of from twelve to thirty days—twenty being the average—and will last up to four days. Cessation of heat after mating may be taken as a sign of pregnancy. Gestation may vary from 110 to 116 days, and a month before the litter is expected the sow should be placed in the sty. When in pig free range can be allowed to real advantage, and near farrowing time warm housing and bedding will be advisable.

Young sows at first farrow may have but one or two piglings, but large, roomy sows, as they get older, will, if selected, give ample litters and of nice rearable youngsters. At birth a young pig may weigh 2 to 3½ lbs., and if the litter is too large some of the piglings can be sold at three weeks old as "suckers." Where several sows farrow about the same time the small piglings of the one can be substituted for the larger ones of the other, thus securing even families as regards size. After farrowing the sow needs light dieting, and at four weeks old the little ones will be seen eating with their dams, and this should be encouraged. The piglings can have a run through into a second sty and court and into the orchard or field, the dam remaining in her sty. If the sow is lost the piglings must be hand-reared by spoon or bottle. At six weeks weaning can take place, when the piglings are best removed to another sty, although, to dry down the mother, they can be turned in with her every other night towards the end.

The outdoor system of pig-keeping has become very prominent of recent years, and those who are able will make full use of it. The pigs will be rung if out on pasture, to discourage rooting up the ground. They are apt to lift up hurdles or netting from the bottom with their noses, but a length of barbed wire near the ground will stop this. In fact, if a coil of barbed wire is fastened 6 inches from the ground and another a foot above, this will make secure fencing as it stands. If hedges form the boundary, they must

be kept thick at the base. Pigs can be folded on forage crops especially grown for them, or they can have the run of woods. The latter are more valuable if they contain nut-bearing trees. Cheap shelters can be erected by the aid of wood faggots, straw-stuffed hurdles, and the like, the outside walls being banked with grass sods. The man with an inventive turn of mind will not be slow in utilising substitutes and in erecting cheap and sound structures. Walls can be built with a mixture of 4 parts clayey soil, 1 part sand, and 1 part cow manure—6 inches thick up to 4 ft. and 9 inches for a 6-ft. wall. The material should be built up in layers of one or two feet at a time. A sty-fed pig will call for at least 200 lbs. of meal more than one running on grass to attain an equal weight, so that the open-air system should be deeply studied.

CHAPTER XII

THE CLAIMS OF THE COW

"Look to the cow and the sow and all will be well now"

THE desire to own a herd of cows soon manifests itself in the case of most small farmers. All I would say is "Go canny!"

The management of milking cows is not a simple matter, and with prices so high as at present one cannot afford to take risks. This is more or less a specialty branch, which should follow when the small farmer has gained full experience in management, feeding, and so forth. To keep one cow to start with and to increase to two in due course after experience has been obtained will be the correct method to adopt, but extensive operations at the commencement do not receive my recommendation. When the time comes to establish a representative herd of cows you will bear in mind the fact that yield—and therefore extent of profit—depends first upon the right class of cow and then upon the best methods of feeding, milking, and management. As with all stock a Grade II specimen will eat as much as, if not more than, a Grade I animal, and yet the difference in yield will be enormous. When the time comes, then, to replace the medium cows one started with, let the new-comers be few and tip-top in breeding and quality.

On good pasture milking cows will not need much by way of cake or meal in the summer, when they will be almost self-supporting out grazing. The art lies in judging the class of pasture and the condition of the herd, and of course the milk-yield will help in one's judgment. From May to October may be reckoned as the grazing period, but there will be periods of drought to guard against, and, as the yield begins to drop in the autumn, increased rations will need to be introduced. The quality of the pasture must also be allowed for, since two acres of good grazing may maintain a cow, whereas more acreage of poor land will be necessary. But in the latter (or any other) case soiling can be combined with grazing, forage crops being grown especially for the cows and fed to them green whilst they are "stalled" in their sheds.

When the winter comes along and the cows go into their winter quarters they will rely upon the crops the small farmer has arranged for them. They will need plenty of hay and straw, hay-chaff and straw-chaff, roots, cabbages, and the like, in addition to cake, meal, grain, and such concentrated foods. The small farmer must therefore ensure for them a winter supply of home-grown produce. Turnips will start the root supply in late autumn, with swedes following on from November, and mangolds last from January. The roots will need to be pulped or sliced in a machine prior to feeding, and the oil-cakes will have to go through a crushing appliance, whilst a chaff-cutter will attend to the hay or straw that has to be chaffed. Water plays its important part when the cows are out at pasture, and again when they are stalled in the winter. Sooner or later water might be laid on in the cow-shed, but a trough or tank in a shady spot out in the enclosure or stockyard will be suitable at first. For preference it should be filled daily with fresh water and be kept constantly cleaned out.

When autumn comes round grazing is usually continued by day for a time, although the cows are housed by night, a practice that is repeated in the spring until the cows go out to graze permanently for the summer. In the winter, however, when the animals are kept to their warm quarters a daily outing—preferably at midday—for a short period will do good, providing exercise and an “airing.” The change from pasture to stall in the autumn and *vice versa* in the spring will be a gradual one, and extra rations of hay will prevent scouring, the same precaution being taken with goats.

A change of grazing will be important, as cows, like goats, need a “fresh bite.” The small farmer will arrange this somehow or other. If he has a meadow reserved for hay he will hand it over to the cows when the hay has been cut and harvested. The aftermath will provide much succulent grass for the cows, as it will for other stock—pigs, poultry, etc. Where possible a feed along the roadside will be appreciated, so long as the cows are in the hands of a responsible person and there is little traffic about on the roads selected. Cows can be tethered, if desired, so long as they are moved to fresh spots and are not subjected too much to the scorching rays of the sun.

As with other stock, the individual must study local circumstances in the matter of housing and the choice of material, and he must bear in mind whether or not the property is freehold. Many will find a suitable structure already existing, whether or not it has been previously used for cows, and such a building can

be modernised by slight alterations. The interior fittings will depend upon the number of cows housed. One can, for instance, divide the place into sections, each to take two cows, the partitions being 3 or 4 ft. long and fairly low. The standing space for each animal may be 4 ft. 6 in., and each can be allowed from 600 to 900 cubic feet of air-space. The number of cows any given house will take is arrived at by multiplying length by width of house in feet and the total by the average height in feet, and dividing the final figure by 600 or 900. The best flooring will be a solid one with a gutter (sloping from one end to the other) in the rear of the cows to take the urine and manure, they being carried away on modern lines. Such a floor can be swilled down regularly. Litter will be needed, although where there is a well-drained floor not so deep a bedding will be necessary. Whatever shed be used utter cleanliness should be observed, and the structure must be light and well ventilated, but free from draughts. There should be a nice wide walk in the rear of the cows, as they stand stalled. At the end of the house hurdles should be fixed across to make a comfortable calf-pen.

Milking cows respond well to kindly treatment, and would-be keepers might take a leaf out of the goat-fancier's diary. A dandy-brush and curry-comb should be used regularly, and the animal kept nice and clean and comfortable. In milking it is wise to be painstaking and patient, bearing in mind the sensitive nature of the cow. The old practice of milking the cows out at pasture, whilst giving each a little to eat in a trough, seems to be dying out. The usual plan is to drive the cows into their shed to be milked twice daily—early morning and afternoon (or evening), food being given whilst the animals are being milked. Quick and clean milking must be adopted, particular-care being taken to secure the last strippings, which form the richest part of the milk. Cleanliness must be observed, the teats being wiped with a rag before and after, and the hands being washed. One of the front teats on the near side and the back one on the far side (and *vice versa*) should be milked together. From the start one will be well advised to weigh the milk daily and record the score to the individual, so that only the best milkers can be kept. The percentage of butter-fats will also be tested sooner or later.

The art of milking must be mastered, as the novice cannot hope to bring down the same yield as the more experienced hand. With a teat in each hand the udder is pressed with thumb and forefinger as the grasp is alternately relaxed. The milk must be passed through a hair-sieve or piece of muslin to remove any dirt, and

then cooled to about 40° to 50°, if for sale. If it is to be separated it should be taken to the machine directly after straining, and if put to set for skimming it should be poured into the receptacles while still warm. For cheese-making and butter-making also the milk is usually handled warm direct from the cow.

The annual yield from a cow will vary according to its breeding and treatment. The average return for all the cows in the country is, I believe, between 500 and 600 gallons of milk each per season, but we have plenty of scope in the direction of yield which can be made use of by selective breeding. Cows in this country have yielded well over 1,000 gallons, and in America individual animals have topped the 2,000 gallons in a season. The cow is dried down, just like the goat, about four to six weeks before she is again due to calf, but breeding and the quality of the individual cow decide the period of lactation. Gestation may cover a period of a little over forty weeks, and it is well to let the cow have her calf in a special shed so that she will not be disturbed. About a month or so after calving the cow will again come into season, when she can again visit the bull. Season may otherwise be expected at intervals of a month or less, and it lasts two or three days. If progress is to be made each cow should be sent to a high-class pedigree bull bred from a heavy-milking dam, and with milking records behind him over several generations if the calf is to be kept for stock. Utility produce, whether eggs or milk, is taken from the male quite as much as the female. It is only in recent years for instance, that poultry-breeders recognised how important it was to select a male bird from the best laying hen. When the cow no longer shows a profitable return she should, like the sow be fattened and marketed.

The calf will be separated from the dam directly after birth or when a fortnight old, and hand-reared if the owner requires to keep it either for stock or for market. Where one has plenty of grazing available, heifer calves may be reared for sale or to represent later additions to the herd. Or any of the steers may be fed up for market. Much depends upon the land and foods available. Otherwise they will be sold early. The calves will be taught to drink out of a bucket, the rearer at first dipping his hand in the milk and letting the calves suck a finger that protrudes. When about a month old calves will commence to eat dry foods, but milk continues in their dietary up to four or five months. when weaning takes place. It is well not to mate up heifers at too young an age. They are usually served by the bull when eighteen months or more old, and up to that time feeding can be cheapened by the use of

pasture, as not being in milk they will not need so generous a diet as cows in profit.

Where it is possible, a local milk-round should be worked up, unless the quantity of milk is large enough to send away by rail. One usually allows twelve hours between the two daily milkings, but such must be arranged according to the daily deliveries. Two deliveries *per diem* are usually followed—early morning and afternoon—and one can, of course, retail some of the milk from the farm. Where one is so placed that butter-making and cheese-making are preferable to retailing the milk, such lines will be taken up.

In butter-making the milk is passed through a cream separator, the cream being abstracted. The alternative is to set the milk direct from the cow to cream in shallow pans, when at the end of twelve hours in summer (about double the time in winter) the cream can be skimmed from the surface. The process is again repeated. The cream is next placed in a receptacle to ripen—a cover being used to keep out the dust—and is stirred daily. Fresh cream can be added so long as all is well stirred together. In a day or two in summer this ripe or “sour” cream is ready for churning, although of course fresh or “sweet” cream can be used, but it does not make such strong butter. Having heated the cream to the desired temperature (50° in summer and about 60° in winter) it is placed in the churn and butter follows in about half an hour. The butter-milk must be drawn off and water is placed in the churn to rinse the butter, this latter process being repeated. The butter is then salted, drained of water, and worked into shapes. The cream can be retailed, if desired.

The small farmer may be inclined to pay attention to the making of soft cheeses, and I give two recipes :

1. Heat the milk up to 90°—85° in hot weather—add a few drops of rennet, and leave covered for two or three hours. Place a colander in a fair-sized bowl and over the former lay a cloth. On the latter put the curds and allow to drain for several hours. Shape the curds into a pat after salting them to taste and place the pat on a plate. Each day for a week turn the cheese and put it on a clean plate each time, when it will be “ripe” for eating.

2. Add three-quarters of a pint of sweet cream to two quarts of freshly-drawn milk. Stir thoroughly and while still warm add a small teaspoonful of rennet. Allow to stand for forty-five minutes and place in 6-in. square moulds lined with cheese-cloth. The bottoms of the moulds should be perforated to allow the whey to escape. After about twelve hours, weight the cheeses lightly

and daily for three days add heavier weights, using fresh cheese-cloths. The cheeses are then "ripe" and should be used quickly.

After the rennet is added to the milk at the desired temperature of 85° to 90°, the milk should be covered to retain the heat during the process of setting. The curd should be neither too firm nor too tender. Cheese-making is a branch that needs careful study, and is not learned in a day, particularly the manufacture of hard cheeses.

Sooner or later, as the farmer extends his head of cows, he will begin to study and master the questions of soiling and silos. My thoughts go back to the day when I received, from the author, one of the most interesting text-books I have yet read. It was entitled *Soiling*, and written by my esteemed confrère, Mr. F. S. Peer, well known here and in America in agricultural and livestock circles. Written in 1881, the author could not find a publisher bold enough to issue the volume, so that he published it himself in New York. He set out in the text how he discovered the soiling method and gave his experiences—ample proof to all except die-hard farmers. Since then soiling has gone ahead, and in years to come will be "it," and my colleague's book has sold extensively. Soiling means the stalling of the cows in summer and winter, and the growing of crops on arable land, which are harvested and taken to the cows. When it is considered that up to five times as many cows can be maintained by soiling on the same acre of pasture the method must compel attention from those of us of the new and progressive school. Some time ago my friend, Mr. P. Hedworth Foulkes, Principal of the Harper Adams Agricultural College, Newport, Salop, sent me particulars of a summer-soiling experiment for milch cows, which clearly proves the wisdom of the newer methods. Such special systems must naturally be carefully studied and gradually brought into being.

CHAPTER XIII

WHITE MEAT FROM WASTE GREEN-STUFF

" Wilful waste brings woeful want "

FOR rapid production the tame or hutched doe rivals the sow, giving from four to six litters in the year, and from twenty-five to forty or more young during the twelve months. Does, of course, vary, but the plan will be to keep as breeding stock only those that have and *rear* large litters, and to use bucks that are sons of such dams.

The chief merit of the hutched rabbit lies in the fact that it is such a splendid converter of waste green-stuff into valuable white meat. As to the extent of the rabbitry, this must depend upon the individual small farmer. Plant is not an expensive matter, and that is a great consideration, as hutches and outdoor rearers can be cheaply constructed from ordinary boxes. Nor are tame rabbits difficult to rear or manage so long as one or two main principles of feeding and housing are carried out.

The small farmer will find the profit side represented by the following branches: (1) The fattening and sale of rabbits for the table; (2) the disposal of specimens for stock purposes; and (3) the sale of rabbits as pets. As regards the fattening of rabbits for the table, it may be well here to add that the high-priced *Ostend* rabbit of pre-war days was none other than a *hutched tame rabbit* fattened up by the Belgian peasant. People who then enjoyed the *Ostend* brand would despise the ordinary hutch-bred specimen, but the prejudice has now disappeared. From 1914-18 people have taken up rabbit-keeping extensively, mainly to increase the meat-rations, so that the public does not need to be taught to appreciate the flesh of a hutch-bred rabbit, as was the drawback prior to 1914. The disappearance from the market of *wild* rabbits in 1917 due to the Government's interference also played its part in introducing *tame* rabbits to the general public. When, early in 1918, I secured Government support for the hutched rabbit, there followed a boom that sent everybody after breeding stock.

Where the table rabbit is concerned cheap feeding is advisable, and it is well to rely in part upon waste green-stuff and surplus garden vegetables, etc. The young rabbits, too, should be brought out during the season when they can be placed out on the grass, cost of rearing being thus reduced. From April to September rabbits can be put out to grass, and they can be accommodated in many ways. Any serviceable type of portable coop that protects the inmates from wind, rain, and the hot rays of the sun will do for the outdoor rearer. The end part should be boarded in and therein should be fitted a wooden board or bench for the rabbits to leap on to. The roof, back, and ends can be of wood and the front of netting—protected by a hood to keep out the rain. A wire-netting bottom is necessary for the rabbits to feed on the grass that is below, and the whole should have handles at each end to facilitate removal to fresh ground. A feeding-cage should hang in the centre to hold greenery or hay, this appliance being about 15 ins. square, and made of wire-netting of $1\frac{1}{2}$ -in. mesh. A coop 6 ft. by 3 ft. will take a litter of six young rabbits from weaning-time—six weeks—to three months, when the sexes will be separated. Afterwards it will take three rabbits to any age. If the coop is to be used for breeding stock there can be a nesting-place in the end section, and the structure might be improved by a floored section (with wire front) which the rabbits could occupy if the grass was wet or if it were necessary to introduce grass-feeding gradually.

Another plan of grazing is to house the mothers and their litters in hutches in an outhouse until the youngsters are six weeks of age, when they can be placed in ordinary hutches on the floor. The shed can be divided by means of netting— $1\frac{1}{2}$ or 2 in. mesh, about 3 ft. 6 ins. high, and on either side there will be outer wire-netting grass enclosures. The netting here will also be 3 ft. 6 ins. high, and can be “staked” into the ground at intervals, so that it can be rolled up and removed. A hutch will be placed in each section within the house, and each litter will have an outer run, being given a pop-hole for exit. Or one might dispense with the smaller enclosures and have one large grass run, the young rabbits being placed together after leaving their dams and being accommodated in hutches placed on the ground.

Young rabbits offer many drawbacks in that the males are ready for breeding in most breeds at three months old, and the sexes commence to fight as a rule at the same age. The sexes must be separated at three months, although the does of about equal age and that have brought up together will agree if run as one lot. The young males that have been brought up in one

another's¹ company can be run together after the separation of the sexes until quarrelling starts, but nothing is certain as to when that will take place. In some instances the males will agree until they are ready for the table at fourteen weeks, but these drawbacks prevent the small farmer from handling the young rabbits as he does his poultry, for instance. It is a point many miss, although there are many exceptions in the direction indicated.

The young rabbits can be fattened in hutches (indoors in the winter) if desired, but the owner loses the cheap feeding offered by the grazing system. On the other hand, one can combine the two, and finish off the rabbits in hutches. To economise in feeding, grazing can be allowed for the breeding stock as well, and the does can be placed with their litters out on the grass, so long as they are returned to their hutches in good time to nest if they are in kindle.

A barn, outhouse, shed, stable, or loft will make an excellent place wherein to place the hutches for the breeding stock. The hutches can be constructed singly or in tiers, the bottom of one hutch being the roof or top of the other. A hutch 3 ft. or 4 ft. long by 20 ins. wide and 20 ins. high will be large enough for the largest kinds for breeding purposes with one foot less for single specimens. One can readily turn an ordinary box into a hutch by knocking it to pieces and reconstructing it. One-third of the hutch should represent the sleeping section, this having a wooden division across with a pop-hole cut therein. There should be a hinged wooden door covering this, and the run should be two-thirds of the structure, the front consisting of $\frac{1}{2}$ -in. meshed wire-netting fitted to a framework to represent a door, which also will be hinged, and "buttoned" when closed. If the division separating nesting-section and run is made removable it can be pushed back or removed if the hutch is to be used for a litter of young rabbits. With the exterior tarred (also the floor) and the interior whitewashed, it remains for the owner to sprinkle the floor with sawdust and place litter in the nesting-section. If an outdoor rabbitry is to be planned the hutches can be fixed to a wall and have a covering or hood over the top of the range to keep off the rain. Or one can place a roof above the hutches, board in the ends, and fix a canvas or wooden door in front. Outdoor hutches should face south, and should be fitted with shutters which can be closed on cold nights.

Many use does and bucks for breeding directly they reach the age of six months, but it is well to allow a little longer for the rabbits to make fullest possible growth. Age, too, should be on

one side of the mating. The doe will be restless and excited, and will stamp her hind feet on the floor of the hutch when she comes into season. Heat may last three or four days, and the parts will be swollen and red, when the doe should be placed in the buck's hutch. One striking will "suffice." Season may be expected every three or four weeks in the spring and early summer, and will appear even whilst the doe is with her young litter. Period of gestation is thirty days, and towards the end the hutch should be kept dark by means of a sack hung over the front and weighted down to the roof of the hutch by a brick.

The young are born singly—blind and hairless—gaining their eyesight about the ninth day, and leaving their nest about the fourteenth day. It is unwise to interfere with the dam or litter at birth, as does have an annoying habit of eating their young. When the young ones leave their nest fresh material can be put in and the old removed. Weaning can take place at six weeks or later; the fancier, in his effort to get size, does not wean the litter till the youngsters are twelve weeks old. The young rabbits are removed gradually. At eight or nine weeks old the youngsters begin to moult, and need to be well fed and managed at that age.

Many will take up the breeding and sale of high-class exhibition rabbits, in which branch there is good money. A buck may be kept at stud, his services being offered at a fixed amount, or there may be openings for the sale of rabbits as pets. Many, on the other hand, may omit this section except in so far as breeding and rearing a few rabbits for their own table in accordance with my plan of "feeding the family."

In my *Rabbit-keeping on Money-making Lines* every branch of rabbit-keeping is dealt with in detail, and such a standard volume should be in the hands of all small farmers.

CHAPTER XIV

MAKING A PROFIT FROM THE DOG OR CAT

"Of idleness comes no goodness"

SURPRISE may be occasioned by my mentioning cats and dogs in a book devoted to "a living from the *land*." But

I am one of those who believe in putting everything possible into profit. It is about a hundred to one that the small farmer will include in his Arcadian schemes the purchase of a dog, and there will follow, for the wife, a cat. Why not? The point that mainly interests me is the turning of these into profit.

A dog will be wanted to guard the farm and to protect the poultry-runs and inmates at night from thieves. At the commencement only one dog may be kept, his special duty being to protect the homestead; but it usually follows that a second "Fido" is purchased whose main duty is to guard the poultry department. In most districts there is to be found the notorious Mr. Poultry-thief, who finds it quite an easy task to place a few hens in a sack and carry them off. Far easier, in fact, than stealing an awkward pig, for instance! The poultry-guard may have its kennel at the top of the farm, the animal being placed on a running chain to enable him to travel down the avenue between the pens. On some farms there is one dog to each avenue, and this kind of protection is found to be better than any insurance. The average poultry-thief unfortunately is not a trained expert in the merits of individual flocks of hens. He is interested in something that he can kill and sell as food, and it usually happens that in his wandering he takes the best birds, which insurance money cannot replace. A dog may keep him off the high-grade stock!

Assuming, then, that you will have one or more dogs, let me persuade you to include them in your *serious* programme. Do not, as is so often the case, keep an Airedale, a Collie, and a Bobtail, because, whilst they will guard your property and stock, they will not fit in with my original schedule. If a pure breed is kept one has profitable channels available for puppies. Supposing, for instance, two dogs are needed, my policy would be to have a dog and a bitch of high-grade quality in, say, a popular breed like the Airedale. When the bitch came into season she would be mated up to the dog, and the resultant puppies sold in due course.

We must here examine the likely demand for the puppies. In the first place, I may add that from 1914 to 1918 the breeding of dogs has been curtailed, with the result that the present shortage of young and good puppies will be maintained for a long time. Thus there is a good opportunity in dog-breeding for one and all. Just, too, as you will need a dog, so will thousands upon thousands of other small farmers, not to mention the private livestock hobbyists. The kind of animal you will want will be exactly what these clients will need. The class of animal I have particularly in mind is the puppy that has been house-trained, taught to be obedient, to lie down, to follow, to be poultry- and stock-proof, and a good guard. If you start out looking for such a dog you may have many shocks, and you will at least realise how difficult such "guaranteed" animals are to procure. All proof positive that my arguments and plea for the dog-breeding branch are sound.

Now there is no better trainer of puppies than their own mother, and if you get a good bitch she will train her young in the ways you need them to go. You can help without a deal of time or trouble by allowing the mother and pups to go round the farm with you regularly whilst you are feeding the stock and so forth. They will be companions to you of the real sporty kind that *every* true Britisher likes. You will have little difficulty in making good money out of such well-trained puppies, but mongrels are to pure-breeds what pence are to pounds!

Should you, in due course, decide to extend the branch of dog-breeding, and to erect a proper series of kennels, the outlay for a tip-top stud dog will be well repaid. It must be remembered that you will be continually in touch with clients needing puppies. If you are a poultry-farmer and use neatly designed memo-heads for your letters, it will cost no extra to include thereon the fact that you have *puppies always for sale*. Nor will it cost you extra postage, for in your usual business you will pick up customers here and there.

As regards the A to Z of professional dog-breeding, and also the common-sense management of dogs, readers are referred to my *Dog-keeping on Common-sense Lines*, a complete standard work that has had a very warm welcome from dog-breeders, dog-keepers, and specialist journals.

The same policy will be carried out with the cat, from which a profit will be expected. You may here be interested in pussy's prowess as a catcher of mice and rats, the demand being good for kittens boasting of such excellent points. Or high-grade Persians may be the objective.

CHAPTER XV

PROFITS FROM THE CHILDREN'S PETS

" Little chests may hold great treasure "

WHERE there are children the keeping of pets should be encouraged in every way. I am afraid the average parent is prone to discourage this sort of thing, which I maintain is a great mistake. The cult of livestock by children has always been fostered by me; in fact, it has been a plank in my propaganda platform. The management of the smaller livestock and the growing of vegetables and flowers should be taught thoroughly in all schools, and I must say that in every case where I have interested myself the children have shown keen enthusiasm for their pets and hobbies. And they have always had a balance on the right side. Where children own livestock they receive much good teaching, and a wider vision of matters in general. What is more, they are taught to be kind to animals, and that alone makes for a sweeter temperament in the child.

There are many side-lines on the small farm which the fond parent can hand over to the children. The rearing of pigeons for the table, the breeding of canaries, pet mice, guinea-pigs, ferrets, rabbits, and puppies suggest themselves right away. The growing of flowers and garden produce also come into the picture. The parent should in all cases supervise in the general management, and keep a watchful eye on important factors, and also study the profit and loss side of the question. One of my students, upon my advice, set up a rabbitry for his boy and girl, and to-day these little fanciers own over twenty breeding does. The father advertises the rabbits on his own " general " memos, and in his ordinary advertisements, although no one knows that the rabbits belong to his children. And the current balance-sheet is a really good one with young rabbits listed at £3 and £5 apiece. Of course I started them with high-grade exhibition stock, and these little folk are *real* fanciers, exhibiting their rabbits at local and other shows. As fits in with my policy, the father supervises in the management,

and the only complaint he has to make is that the bairns¹ are fond of commandeering his chicken-rearing appliances as accommodation for the young litters. As I pointed out, these rearers are in use for chickens for but a few months in the year, and to follow on with young rabbits plant-power is studied to a nicety.

From a small beginning any side-line taken up by the children can be developed on paying lines directly the young operators show that they have mastered the many leading problems. They can be moulded into genuine little specialists quite readily. As bearing on this matter let me give a U.S. Wireless from Chicago taken from this morning's paper :

BOYS' £400 HOG

Aged 13 and 16, Own Herd Worth £5,000; started with £5.

CHICAGO, *Monday*.

John Turner, aged 16, and William Turner, 13, exhibited a prize hog valued at £400 at the International Livestock Exposition and Horse Fair.

The boys own a herd valued at £5,000. They began four years ago with £5.—U.S. Wireless.

Now America is not the *only* place where the children, given maximum encouragement, can *do* things !

CHAPTER XVI

FRUIT-FARMING AS IT REALLY IS

" 'Tis the farmer's care makes the tree bear "

TO the average would-be Arcadian fruit-farming greatly appeals, and yet I doubt if there is any other branch of farming which calls for greater skill and experience. It is here that I wish my reader to "go canny." I have seen enthusiasts spend little fortunes over fruit-plantations, only to find that the land is unsuitable, and needs a thorough system of drainage installed. And I have seen property mortgaged to pay for that drainage, so confident has the Arcadian been of the final results. A *sale by auction* has in more than one case been the outcome.

In fruit-farming there can be no standardised methods. Everything depends upon the individual and his expert knowledge. First of all, there is the soil to study, and then the selection of the right class of tree in each variety of fruit to suit the soil. Then comes the maintenance of the trees. Returns depend so much upon the man and his methods that the beginner should check his fever and go thoroughly into matters ere spending a large sum on his venture. There are uncertainties to contend with, as, for instance, a season of scarcity and the opposite—a glut. Once the trees are placed in the ground, with them goes the capital; if the selected trees fail the money goes with them. One has but to examine the orchards owned by farmers and small-holders who have not mastered the cult. Some of the trees are worn out, giving low-grade fruit, and little of it, and using up valuable ground. Other trees are covered with moss or lichen, and plenty are full of useless wood. The pruning-knife has never been used, and growth is so thick that neither sun nor air can circulate through the branches. One notices many decayed trees that have long since lost their vitality, and that there has been no selection as regards the variety of tree or the site. If one is to get low-grade produce and little of it that will never mean maximum returns. It is well, then, for the fruit-grower to go slowly and to master this branch as he pro-

ceeds. That is why I should recommend fruit-farming as the main specialty only to the person who has had ripe experience. The novice will do well to treat it as a side-line, and to learn as he goes along, setting out to find exactly what will suit his soil best.

Lack of proper drainage is one of the chief causes of failure, water-logged ground yielding poor results, and the trees gradually decaying. The land can be drained by means of pipes, but such means extra outlay. Where one takes a farm and trees are already installed, he should, if inexperienced, secure the services of an expert so that the condition of each tree can be examined carefully and the remedy applied where necessary. Trees that are too far decayed will best be cut down and used for firewood. Some will be spared, being cut partly down so that new growth will appear in due course, all decayed parts being removed. Young trees will take the place of any taken away. The trees will next be judged as to their value as profit-makers, and new kinds will be introduced to strengthen any weaknesses. Doubtful trees will be marked so that later they can be "beheaded," and grafted with more approved brands. Pruning will be necessary if the trees have been neglected, and in early autumn or very early spring, and here one must be careful. The "local" expert is usually given to butchering methods which are detrimental, as trees are soon thrown back if not wisely pruned. The first operation will be to let sun and air into the centre of the tree, which can be arrived at by the gentle removal of small unnecessary twigs that will not be likely to mature. Where branches are crowded or overlap thinning out will be done, so that the sound branches will be left. Old trees will respond to careful pruning, and, if necessary, the process can be extended over two or more seasons until the trees "come back."

Lichen and moss will be removed and manure applied, whilst if it is a grass orchard the sods may need to be removed at the base of each tree for an approved distance around. Then spraying the trees will probably be advisable. The average would-be small farmer then will select a place where an orchard (or fruit-trees) exists. He will next have the trees overhauled and renovated and finally he will set out to master the art of fruit-farming step by step. Extensions will be made as he goes along on lines that have proved highly successful in his individual case. He will set out to find which class of fruit will pay him best in his locality. Enquiries in the neighbourhood will bring out some helpful data. The pros and cons of early *versus* late fruit will have to be thrashed out and also the market—wholesale or retail—that awaits his

produce.' The distance from the nearest railway station and whether or not the line is a main one will have an important bearing on leading points. Then soil will have to be taken into full account. All these things warrant slow but sure steps by any other than those who are fully acquainted with the A B C of fruit-culture.

Having worked out one's plans, there will be the selection of the site to be carefully thought out. A gentle slope having a south or south-west aspect is the ideal, elevated land that admits of cold and cutting winds being discarded. In fact, the fruit-grower will learn that frosts, cold winds, and fogs are enemies to be feared. He will therefore avoid a low-lying situation near a river, where fogs are common. As developments follow drawbacks will be mastered. Shelters, for instance, will be erected to act as a barrier against winds in exposed sites. Hardy damson or plum trees may, for instance, be planted to form an outer screen.

Next will come the question as to how the fruit-trees are to be planted. One person may decide to arrange a grass-orchard so that the paddock or enclosure can be used for livestock. Standard trees—with a stem 6 ft. or more in length—will probably be selected in this case. Such trees may, for instance, be planted in and around the grass poultry-runs used by the breeding-stock, affording very welcome shade as well as "top" fruit. Another person may decide to have a plantation on arable or cultivated ground, planting standard trees for the "top" fruit, and bush (a beheaded standard) or pyramid trees below for the "bottom" produce. A third may add to plan number two some of the smaller bush fruits like gooseberries, currants, etc., to arrive at a mixed plantation. A fourth may hit upon bush and pyramid trees with these smaller bushes such as gooseberries. And vegetables may be worked in as the "bottom" crop by the fifth. A sixth may have standard trees, allowing the pigs to run loose over the site that is enclosed. The exact method will depend upon individual plans, and of course one line may be removed at any time that the leading section becomes established. For instance, one might plant strawberries or the smaller fruits (currants, etc.), only to remove them later. It is all a question of making the most of the land without overstocking it. One must make a study of the distances at which the trees must be placed apart according to the kinds and the general programme.

Fruit-trees naturally do best when planted in arable land. Many orchards now in grass were for many years arable, not being laid down till the trees had got a firm hold. If trees are planted in grass-land the sods should be removed at the base for a circle

of 3 ft. or so, this spot being kept continuously clear of weeds and well manured. The fruit-grower must take steps to master the A B C of planting, working the ground well, and not planting too deeply. He must study the seasons for such planting, October and November being the best months, although planting can be carried out up to March with favourable weather chosen. He must stake the trees so that the tops will not be broken off by the wind. It is usual to see young trees unstaked and swaying to and fro with the wind. A firm stand is essential, although it is not well to plant trees too deeply. Remembering, too, that the young trees need all the nourishment possible, other crops must not be planted too near to spoil both sorts. As the fruit-grower goes along he will bear in mind all questions affecting his individual case. If livestock are to occupy the orchard or enclosure, he must ascertain the best methods to guard the young trees against the stock. Wire-netting guards will prove effective in many instances, or a fencing can be erected against the larger animals. This matter is one that should be very carefully thought out, as farmers are too prone, in my opinion, to leave their trees unprotected. The stems, in consequence, get injured and canker sets in. Poultry and pigs run in either cultivated or grass orchards do the world of good, whilst bees fertilise the blossoms. The poultry will miss very few of the harmful pests as they crawl from tree to tree or drop from the branches.

Pruning will have to be mastered because it is so important a factor as regards the future yield of each tree. At first the small farmer will get the impression that pruning means "lopping" off the branches here, there, and everywhere. If he is guided by the *oldest resident in the village* (who is usually the handy man in his own opinion) he cannot avoid this idea. He will come across the handy man I have in mind soon after he takes his farm. This "jack-of-all-trades" is usually open to every kind of engagement, from the ringing and slaughtering of a pig down to the *butchering* of fruit-trees. And it is butchering with a vengeance, as he cuts more off the tree than he leaves on, thus decreasing instead of increasing the yield. The progressive farmer will go about his business in a totally different way. He will not endeavour to master a standardised system of pruning, but will treat each tree individually. To the man who uses his prowess pruning will be a very enjoyable undertaking. The pruner will be like the school-master, each tree being a pupil that needs training according to its every point of merit or fault. He will remember that pruning is done to promote growth and vigour, to aid early maturity, to let

through light, sun, and air, and to secure an approved shapely tree. The pruner who is automatic will, on principle, cut short every tree, but not so the modern "think-what-you-are-doing" man. The latter will cut back a tree with weak and dwarfed shoots, but he will go gently with another whose sprouts are long and strong. Apart from the general pruning in the autumn a slight shortening of off-sprouts from previously pruned leaders may be necessary. I am referring here to the standard and bush apple, etc., trees.

Having mastered the general principles of pruning, let the fruit-grower pay due attention to the various fruit-trees and the individual kinds. In some kinds of apple-trees where the fruit is carried on the extremity of each branch the cutting back of the leader is not practised, the crowded branches being merely thinned out. A tree like the plum, too, can carry more wood than one bearing heavier and larger produce. These are exceptions which, with very many others, must be mastered step by step.

After the fruit-grower has learned all about grafting and budding, he will concentrate his attention on the spraying of the trees. Fruit-trees have their countless pests, which endeavour to rob the owner of his crop even after he has been most careful in his management of the plantation and orchard. Here, again, comes in the "lottery" side of the question, although strong trees that have been well manured and handled will resist the attacks of pests better than neglected weaklings. Take only the case of the moth. The female ascends the apple-tree in September or October to deposit her eggs along the branches. These eggs hatch out in the following April or May, when the resultant caterpillars start feeding on the leaves and buds. Later they descend the trees and bury themselves in the ground, where, going through the "cocoon" stage, they are transformed about September into moths and ascend the trees to lay their eggs. The old-time plan is to fix a grease-band round the stem of each tree a few feet from the ground about September. The band consists of prepared paper which is fastened securely to the stem of the tree and grease and Stockholm tar applied. The adhesive matter catches the moth (wingless) as she ascends the tree to lay her eggs, and several applications of grease will be necessary. Spraying of the trees is resorted to in order to destroy those caterpillars resulting from moths that escaped the grease-bands. Each fruit-tree has its particular pest, so that it will be readily seen that fruit-farming does not consist of planting the trees one year and collecting the fruit the next.

Selection of the kinds of trees and fruits will be very important.

Bush trees, for instance, come into bearing much earlier than standards, and it will be well to ascertain how long each kind requires ere a profitable crop is given. Again, one will take into account whether the property is rented only or freehold.

Raspberries are looked upon as easy to grow, with the result that we often see the canes overcrowded and neglected, one running into the other. If the crop is to be good and ample, and the fruits large, then modern methods of cultivation are imperative. A deep moist soil is ideal, although it should not be saturated. For from 18 to 24 ins. down the soil needs to be workable and light, and more so around the roots at planting to promote firm growth. In sheltered positions the raspberry does best, and appreciates heavy manuring. Propagation is from young "suckers" dug up from the side of the parent stocks and preferably from young trees. These suckers are planted 24 ins. apart, and 4 ft. or so between the rows, and are cut down to within a few inches of the ground. Planting takes place from November onwards, and, whilst there is hardly any return the first and second years, the average yield after the third may be from 1 ton per acre. To help matters a bottom crop of early potatoes is usual, run in conjunction with first plantings. Hoeings should be regular to keep away weeds, and surplus shoots should be removed to allow five or six canes to each stock. After harvest the old canes should be withdrawn and the new canes left for fruiting the next season after they have been thinned. The best crops are from plantings of from three to six years old although trees last much longer.

Gooseberries are most useful because they can be marketed when green or unripe. The trees are raised from cuttings, stout summer shoots from 18 ins. high being cut in the autumn. About four buds are left at the top and the others removed, and each shoot or cutting is planted several inches in the ground. The branches are cut back about half their length, and the resultant branches are also cut back. When cutting the end bud should point upwards or outwards (not downwards), so that the sprout will follow in that direction. Then the fruit will hang clear of the ground, and allowance will be made for the weight of gooseberries to bear down the branch without touching the ground. Planting is in autumn or spring, and strawberries or roots are usually cultivated between the rows for several years until the trees are established. The gooseberry needs a reasonably light, porous soil, and shallow cultivation, while exposed or low-lying sites are undesirable because of the frosts in the spring. The bushes should be 5 ft or 6 ft. apart,

and progressive pruning is essential. In the fourth year the crop will be worth harvesting.

The black currant likes a deep soil and ample moisture; in fact, it will grow well where other bushes will fail owing to the moist soil. It is planted in the form of a cutting like the gooseberry where one desires to have shoots off the one stem, or it can be grown from the ground, the former being more common in gardens. As the fruit forms on the new wood the dark or old wood should be cut out each year. Planting is 5 ft. apart, and if bushes are planted springing from the ground two-year-olds are best, and in early autumn. Distance between the rows is 3 ft. Black currants are best from the fifth to twelfth year, and give good crops from the third, the average yield being $\frac{1}{2}$ to $1\frac{1}{2}$ tons per acre.

Red currants are planted about 5 ft. apart and (like white currants) are raised from a cutting. As the fruit is formed on the old wood the new wood is cut back, which is the reverse to the black variety. The white currant bears no comparison with the other two kinds for marketing purposes, and is more or less a fancy variety. Red currants average $1\frac{1}{2}$ tons per acre.

The loganberry is a cross between the raspberry and the blackberry, and the fruit is very large, but of much the same hue (shade darker perhaps) and type of the former. It should be dead-ripe when gathered or is prone to taste sour. After the first year wiring is necessary as supports, and at once the wire-netting around poultry-pens is suggested. The old wood must be cut out annually, but, although a gross feeder, it does not seem very particular as to soil. Canes are planted 8 ft. apart, with 8 ft. between the rows. After the second year the fruit makes a good crop.

In the field cultivation of strawberries the planting is in February and March, the land being well manured and prepared beforehand, the ground being made firm with roller or foot. Strong runners from young plants are selected, and the plants are dibbled in ones, twos, or threes to each hole. The rows are 32 to 35 ins. apart, and the plants 16 to 18 ins. from each other. The yield is poor the first year, but good the second—2 to 5 tons per acre—but in the fourth the crop drops to half this quantity. The strawberry has a short life of three or four years, and no crop is taken the first year. The land is well prepared prior to planting and heavily manured—30 to 40 tons of dung per acre—and cleared of weeds. When in blossom straw is placed between the rows to prevent the strawberries from getting dirty, and it is removed after the harvest has been gathered. The runners are then cut off and the plants are earthed up. Fresh plantations should be set each

year to equalise the yield, and to allow for those running out of profit after giving their three full crops. The strawberry suits many soils, particularly if it has a rich depth and is made firm. Ground that suits onions, lettuces, and cauliflowers will suit the strawberry, as will that from which potatoes have been lifted. Onions are usually planted between the rows the first year. On a small scale the runners can be planted in July or August to get a firm stand before winter. They can be planted with a trowel, and be placed at smaller distances if desired. The ground can be hoed regularly, to prevent the appearance of weeds.

As regards the cultivation of apple-trees one can readily err first in stocking too many kinds, and secondly in not making sure that the variety fits in well with the soil. The latter varies not only in counties, but on neighbouring farms within the same county, hence the importance of allowing for same. Soil that suits wheat, cabbages, and potatoes will also do well for apples; but we need a good depth of soil and the latter must be well drained. On chalky and gravelly soils apple-trees do not give of their best. Clay soil, if well drained, is good. It is often stated that Cox's Orange Pippin is the queen of dessert apples, and that draws fruit-growers to it, only to find that this variety does not succeed in all localities. A damp site, for instance, makes it decay and canker, whereas Allington Pippin might do well. There are ample varieties to choose from according to the objective in view, from those for cider down to dessert. One will aim at equalising the yield throughout the season, so to speak, but not have too many varieties of each. Having found the kinds that suit the soil extensions should be made with same. Standard trees may be planted 20 ft. to 24 ft. apart each way, half-standards 20 ft., pyramid and bush trees 10 to 18 ft., and bush trees on Paradise stock 6 ft. to 8 ft. Standards have a stem of about 6 ft., and are suitable for orchards. Half-standards have a trunk of 3 ft. to 4 ft. with branches at the top and are ideal for mixed plantations.

Pears need a well sheltered site and a rich soil to a depth of 2 ft. or 3 ft. At certain seasons frost, cold, and windy weather do heavy damage, and in the general way the pear does not furnish a certain crop for the novice. The distances for planting can be as for apples and pyramidal-shaped bushes on the quince stock—at 9 ft. apart each way—give the quickest and best results, although one has to wait seven years till the crop is a worthy one. The smaller fruits—black currants, etc., can be planted below.

Plums do well on most soils and are content even with a lighter

and more shallow soil than apples and pears. They are usually planted alone with soft fruits below or in plantations between standard apples. Half-standard trees are usually planted, and 15 ft. to 18 ft. apart. Plums come into good profit after their sixth year, and do well, like pear-trees, where bees are available.

Damsons represent a good autumn crop, and the trees are usually planted as an outer border to fruit plantations to act as a wind-break. The bullace is another member of the plum family, and is not to be confused with the sloe of our hedgerows. It bears small yellowish green or white fruits.

Cherries appeal strongly to the would-be Arcadian, but he will do well to bear in mind, first, that the cherry-tree is very particular as to soil, and secondly that birds relish the fruit. Apart from being well drained, the sub-soil must be open, as the roots of the cherry-tree strike deeper than those of other trees. Clay or water-logged land is not suitable. Again, it is well to remember that hired labour may be necessary to scare the birds away, in which case a goodly number of trees should be planted together. Morello cherries are not attacked so much by birds as others, and in a small way may be the most suitable. Standards are usually placed 30 ft. to 40 ft. apart, and, after being kept arable for eight or ten years, the land is laid down to grass, when sheep, pigs, and poultry are the ideal livestock to form the "bottom" crop. Pyramids can be 12 ft. apart. Plenty of manure is necessary and as a side-issue trees can be planted against the walls of the farm-buildings, as can pears.

Cob and filbert nuts are not widely grown, being confined to certain localities. They do well on stony lands or well-drained loam with an open and sunny position sheltered from the cold winds. Heavy, too rich or damp soil is not good, and of the two the cob gives the heavier yield. Nuts are not a certain crop, as some years the yield is heavy and in others *vice versa*. About the sixth year the crop is profitable, but the trees are long-lived, being at their best from the fifteenth to the fiftieth year. Usually planted 15 ft. apart, the trees are kept about 6 ft. in height. Although bottom crops can be obtained until the nut-trees are established, the planting of apple-trees is apt to shut out the rays of the sun, which is not beneficial to the nut-trees.

The walnut requires lime in the soil, but will do well where apple-trees thrive. Walnuts are long-lived, but come into profit very slowly, so that they will not be planted as a quick commercial proposition. Trees do not require pruning, the dead wood only needing to be removed. Trees of seventy years and more of

age give good crops of nuts. The yield is perhaps uncertain and varies in different trees even on the same estate.

The beginner will see that with the larger fruits there is the "waiting" period whilst they become established. On freehold property the addition of fruit-trees increases the value of the estate and the trees are handed down from father to son. On rented property one would be unwise to plant slowly-maturing plantations, etc., without having an arrangement with the landlord whereby the latter paid compensation on the holding being given up.

CHAPTER XVII

MARKET-GARDENING

"Weeds want no sowing"

UNDER my scheme the would-be small farmer or small-holder will content himself with feeding the family to start with, until he has time to look around and study the question of markets and so forth. We must not close our eyes to the fact that men and women have since 1914 been captivated by the idea of having fresh vegetables and green-stuff for their table. As a consequence they have taken allotments, and it is a difficult question to say what may be the ultimate result. In my opinion allotments have come to stay, and, if that should prove correct, that will lessen the demand for ordinary market produce. Anyhow, it is a matter we must not overlook, and, if nothing more, it reminds me how important it is to get the most out of the ground at one's disposal. The beginner cannot expect in a short time to master all the pros and cons of intensive culture; he may get a good grasp of the principles, but he must go beyond. He will be guided by his available markets and the kind of demand there for his produce, and he will also set out to ascertain exactly what will suit his particular ground the best.

As regards the position of the vegetable garden, a gentle slope towards the south is advisable with a hill or wind-break on the south-west. Extremes, such as in a valley or on the top of a hill, should not be selected. On high exposed sites, winds and storms will do injury, and in low-lying positions fogs and frost are the enemies, apart from the ground being water-logged. Land with a slope is better than if dead-level; but there must not be too much of a dip, or the surface-soil will be moved by the rains and labour will be increased, the operator having to trudge wearily up hill every time.

A three-feet depth of lightish loam with subsoil of gravel or chalk is ideal; but one cannot have all things as desired. Very thin or fine sandy soils call for heavy manuring and watering, and in

dry weather the operator's toil is consequently increased. Water-logged ground means expense in draining, and later liming to sweeten the ground ere crops are expected. Too heavy soil must be lightened, and if we get between light and heavy, with a porous sub-soil, that is serviceable. Should the sub-soil be heavy clay, drainage will again be necessary. Water-logged ground keeps down the temperature and excludes the air, thus proving a serious drawback. To an experienced eye the kind and condition of the herbage will give an indication as to whether the land is water-logged. Tufted grass will be noticed, also marsh marigolds, and the herbage will be yellowish in hue. A test-hole can be dug to see where the water stands, and if it is 3 ft. or less below the surface drainage is advisable. One must not use too many drains, as a certain amount of moisture is essential and the outlet of the main drains must be lower than the top inlet. Four-inch pipes are usually employed for main drains, and 2-in. ones for branch-drains, leading into the mains on either side.

The planning of the site must be left to the individual. Walls or fencings are to be preferred to hedges as borders, as the trees only rob the soil. Paths must be allowed for and the main ones should be 3 ft. wide and the others 15 ins. to 18 ins. Dry paths are necessary, and, having removed 6 ins. or 9 ins. of earth, put in broken bricks, stones, clinkers, and the like, ram down tight, and, as a top dressing, add a 3-in. depth of gravel, sand, or sifted ashes. The centre should stand slightly higher than the sides, and constant rolling will in time secure a firm surface.

As the future returns will depend very much upon the preparation of the ground, this question will be fully mastered quite early. There are many methods of turning up the ground. For instance, a trench 2 ft. wide and the length of the plot to be dug may first be opened up, the soil removed being placed at the spot where digging is to cease. If the plot is a large one it can be divided into two sections or more. Having placed the spade well into the ground in an upright pose, take out the soil, turn it well over, and place it in the empty trench. As you go along you will always have this empty trench, and when you get to the end you fill it with the soil taken out at the commencement of operations. If the soil is heavy, stable manure and lime may be well dug in. If it is grass-land the sods are first removed and placed in the bottom of the trench next the sub-soil when the other surface soil follows, and digging proceeds. The market-gardener will then know all about trenching (which is double digging so to speak, as the operator goes down two spades in depth), and bastard trenching, both done

with the idea of bringing into a fertile condition the whole depth of soil in a few seasons. But one must study the question of sub-soils, as it would be unwise to bring a sour sub-soil to the top to be improved by exposure to the air and to put the good surface soil in its place. The soil must be improved quickly but on sound lines.

In the growing of crops it is well to remember that the maximum yield cannot be obtained unless the soil is kept in fit condition by the wise use of manures. Many market-gardeners fail because they are afraid to use manure, or neglect to study that branch of the subject. The would-be market-gardener will therefore attach the utmost importance to the question of manures and manuring from the start. In his poultry droppings he will have one of the best possible manures which can be stored away in an outhouse, each layer being covered with a little earth. Chemical and artificial manures will call for attention; but one is apt to place too much reliance upon them instead of regarding them as adjuncts to the other kinds.

Definite systems of cropping in rotation are endless, but it is well to evolve in time set schedules that suit the individual's garden. And the peculiarities of each kind of vegetable, etc., must be learned. Intercropping must also receive attention on the lines that we must make the most of the land, and not leave it idle longer than can be helped. With early potatoes earthed up, winter greens—brussels sprouts, etc.—will be planted between the rows. As the mid-season potatoes are harvested the ground will be cleared for winter greens, and as each crop is gathered so must another be planned on the same ground. It is all a question of thinking things out in advance. Certain greens do not do well if they follow other members of the same family, and whilst one kind likes a recently manured bed others do not. Again, certain crops do well after other special kinds have been harvested, whilst some need a fresh spot the second season. Whilst many crops occupy the ground for a long period, some do so for a shorter period, and then there are the catch-crops of the quick-growing kind like lettuce, radishes, etc., which are useful to fill up the spaces.

Autumn is perhaps the best time for the market-gardener to commence operations, and in planning one must take into account the question of labour, which is a very heavy item. Four acres of market-gardening might require the labour of three men, and that is where the beginner will be handicapped if he plans to make his branch the specialty. The road to success for the novice is for him to hit home those branches which, whilst not calling for a lot of

labour, will nevertheless bring in a safe income, as, for instance, poultry-keeping. If, therefore, the man concentrates on feeding the family at the start, he can, as he becomes established, extend the market-gardening side until it warrants the hiring of labour. Then the owner can be the key-man only to that branch which will in time become perhaps a leading one. The difference is this, however, that my reader has established himself and secured a definite income, thus enabling him to build up with the profits until his ideal or model estate has been achieved. By the time extensions are desired on a large scale the go-ahead small farmer should have one or two pupils in training, and these will provide labour at the same time free of cost. In fact, the pupils will pay well for their training, and give their labour in. I do not suggest for one moment that an unfair use be made of their services, but so long as they are given a thorough training they will be available for duties in the market-garden as desired, helping and learning at the same time.

The special arrangement and size of the market-garden must depend upon circumstances. And it can be studded with fruit-trees if so desired. As already mentioned, the poultry-runs can systematically be cropped. One can, for instance, place the house in the centre of four wire-netting enclosures, three being under crops whilst the fowls occupy the fourth. A pop-hole with shutter is made in the house to cover each run, so that the fowls can enter any given enclosure and be shut up from the rest. Or each house can have a run on north and south side, one being under crops whilst the other is occupied by the birds.

A few garden-frames will be very important, wherein the market-gardener can make early sowings of celery, leeks, cucumbers, tomatoes, marrows, lettuce, onions, and so forth. When such can be grown under glass frames the operator can have an early start. A hot-bed can be placed in the frame, or well-prepared soil only can be used, and a forcing-house might suggest itself to force on certain plants.

There are certain kinds of vegetables, etc., which the market-gardener will find suitable for "leaders," for instance, onions, and he must ascertain what these are as regards local and other demands. Mushrooms and tomatoes will suggest themselves, and a few words on this matter will not be out of place. Both can break as well as make a man! Mushrooms can be grown out of doors, under glass frames, in glass-houses, in sheds and so forth; but the growing of same on an extensive scale is for the master-hand. There are failures that even the most careful novice cannot help making,

and where a heavy plunge is made in the direction of one or other of these attractive lines as a result of reading "how to do it simply," bad luck not only disheartens a man but eats a hole in the capital. The latter is what I wish to avoid at the start unless the returns are going to fill up the gap made. One often sees a person elated over the outdoor growing of tomatoes only to find, later on, upon enquiry, that the crop failed owing to the awful summer. In glass or hot-houses the tomato does well and after the tomato season mushrooms can follow on in the same structure in the hands of the right man. For tomato growing, too, the poultry manure will prove excellent. My opinion, then, is that such lines should be run in quite a small way until experience and success compel extensions. Glass houses will sooner or later prove a very profitable investment, not only for tomatoes and so forth, but for flowers. By keeping one's eyes open it is often possible to buy such houses quite cheaply at local sales, and even if not actually needed at the moment, the progressive man will never shut an eye to "bargains" of the real type. Of late herb-growing has come to the front, and appears attractive right away to the uninitiated. Again I suggest a small beginning rather than a speciality, until one feels the way. Where, of course, the would-be small farmer is fully experienced in market-gardening, the latter will naturally be an important specialty branch, but my object is to draw comparisons, so that the uninitiated can cross-examine himself upon the schemes he has mapped out in order to test their soundness or otherwise.

Where one starts in the small way outlined the outlay is very small for seeds, etc., and in providing vegetables and green-stuff for the family the cost of living is reduced and a good profit left over. The surplus is marketed and gradually the kitchen-garden is built up into a model—small or large—*market* garden. The livestock will in my schedule pay the rent meanwhile, and bring in the income and take its share of surplus garden crops. A good standard book on *vegeculture* will give fully the methods of treatment for each kind of vegetable.

CHAPTER XVIII

GROWING FLOWERS

"Nature, time and patience are the three great physicians"

FOLLOWING up my theme that "a living from the land" means the making and taking of opportunities, I will give reasons why the cultivation of flowers should represent a sound side-line. Since 1914 the pleasure garden has been given over to the more serious production of foodstuffs. Vegeticulture will continue on an extensive scale because it has proved a healthy occupation for the business man, and a means of exercise. What is more, both sexes have been attracted. The pleasure garden will, however, return even though it will not mean at the entire expense of the "food" plot. There will be plenty who will need strong young plants, and the market should be a profitable one.

Then there will be those who have lost in the war some one near and dear to them. It may be husband or only son, and not a few will seek solace from their flower-gardens. Nature is one of the three great physicians, and beautiful flowers tend to brighten the outlook and to keep sad memories in check. The hero, too, who has returned home will show admiration for the pretty flowers Nature's hand creates. The drawing-room and the bedroom will, after all these years of suffering, never appear complete without the peaceful adornment of flowers.

One may, therefore, regard cut flowers and plants as of more commercial value than before. The cultivation of flowers may be handed down as a suitable branch to the farmer's wife, and she will probably revel in its glory. It may matter little what the flowers are so long as they are of the prettiest. Borders of flowers can be planted to provide cut flowers, and the demands of the locality may be ascertained and met.

If a glass-house is available one may force early plants and specialise sooner or later in chrysanthemums. In this way blooms can be obtained to supply cut flowers in out of seasons. This side-line is well worthy of support, in my opinion.

CHAPTER XIX

MARKETS AND MARKETING

"A wise man will make more opportunities than he finds"

HAVING produced the "goods," the small farmer will desire to know ways of marketing same. This is the branch which needs speeding up, and which many present-day producers leave out of their calculation. It is useless to select channels just because they give the least trouble to the operator; after all, it is the returns that count. Originality in marketing will always claim its due reward!

In the matter of livestock destined for the table, the small farmer will make himself acquainted with the various methods of killing and preparation for sale, and also the class of product needed. It is not a difficult matter to gain experience, as plenty of level-headed locals will for a small fee kill and prepare a pig or a fowl, and the owner, if uninitiated, will have to learn the gentle art step by step. The novice in killing a pig may use a special gun, or may first stun the animal with a stout blow on the forehead and then stick it. The pig may be forced on to its back or strung up by the hind-leg to the roof of the selected slaughter-house. A narrow knife with a straight eight-inch blade is pushed into the neck to a depth of six inches or so, and turned quickly to one side ere being withdrawn. No food is given for twenty-four hours prior to killing. The carcase can be scalded in water registering a temperature of 185° to 195°, a piece of lime, handful of soft soap, and a little pine-tar being added to the water to remove the scurf. The hairs are scraped off with a blunt knife and the carcase rinsed in cold water. Some prefer to singe the pig, placing it on a bed of clean straw and lighting the latter. The carcase is turned in the process. Having opened the carcase and removed the interiors, the pig is hung up for eight or nine hours to cool, and then it is cut up. Now the cuts of a pig vary according to the locality, and such is a point that must be ascertained. To pickle the sides, place them in a mixture of 10 lbs. salt, 1 lb. salt-petre, 1 lb.

cane sugar (in winter only), 1 lb. dry antiseptic or good preservative powder, and four gallons of water. Allow pickle to stand twenty-four hours, then strain, and nine days will see the sides properly pickled. If dry salted, rub in a mixture of fine common salt to which 2 ozs. of salt-petre has been added, and cover with about half an inch of salt. Turn daily for ten days, then on alternate days up to the twentieth, when wipe off the salt and hang the parts up to drain and then they can be smoke-dried if desired. Place in light close calico bags and keep in dry, airy place. Then there will be the smoking of hams to master, and the making the most of the internal parts. Lard is produced by three-parts filling a clean saucepan with leaf-fat, and the trimmings of ham, shoulder, and neck, and adding a quart of water or hot lard. Place receptacle over a slow fire, stir well until the cracklings are brown and float, when allow to cool. Strain through muslin cloth. To each 50 lbs. of fat 2 oz. of baking soda is added to whiten the lard, and continual stirring during cooling process will also help in this direction.

Marketing comes into the question prominently. The pig produce can be sold to butcher, dealer, or salesman, or in market by auction or to private friends and customers. When taken to market they should be well fed prior to dispatch, carted in a crate, and arrive neither too early nor too late. If the pig is driven make a fast noose in one end of a length of cord to go over the pig's head, pass the cord along the shoulders, holding it there whilst the end is passed under the pig behind the forelegs and carried up to the shoulder and tied. Market pigs clean and give them a wash if necessary. Prior to marketing use clean bedding, and remember that even dirty feet are a drawback.

London is one of the best markets for porkers, the usual practice being to dress the pigs and send them to a salesman, who, for a small commission, sells the produce and sends cheques promptly. For the fresh and salt pork trade white pigs are preferred, as black animals show traces of black hair in the meat, and the skin on the belly is black. For the bacon pig colour does not count. Weights vary according to the locality, and the market. London and many leading towns ask for porkers of 85 lbs. to 90 lbs. alive or about 60 lbs. dead, whereas some markets accept them up to 130 liveweight. Popular weights for bacon are from 120 to 190 lbs. dead, the Wiltshire bacon trade asking for a lean sizable "side" of 56 to 60 lbs. In the north—Lancashire and Yorkshire—a heavier bacon pig of 220 to 300 lbs. alive is in demand.

Goat's milk can be sold to dairies (if plenty is available), customers

recommended by local doctors (the milk being for invalids and infants), nursing homes, hospitals, convalescent homes, and to private customers. If sent by rail it needs to be properly cooled, and it is well to remember that it does not keep so well as cow's milk.

In America goat's meat is sold extensively over the counter, and not always as the "real" thing. It can be eaten fresh like mutton, or salted and cured as a substitute for bacon. It is best kept a week (in cold weather, a fortnight) prior to cooking if it is to be eaten fresh. Head, pluck, and trimmings are best eaten promptly; heart, lights, and liver can be boiled or fried, and the head boiled for broth. Salted meat is best soaked overnight in cold water before cooking, to remove some of the brine. Goat's meat can be sold to the butcher or to private customers, although one may be tempted with such produce that carries a public prejudice to give a little away to selected clients to sample and report upon with a view to future bookings.

To kill a kid, tie the two hind-legs and one foreleg together, place the animal on its side on a box, and insert a sharp knife underneath the ear, pressing it through to the other side. Or the throat can be cut right across. Before killing fast for twenty-four hours to clear the intestines, and after killing allow the blood to run out freely. Then will come the skinning and opening of the carcase, and the cutting up and curing, all of which matters are fully dealt with in my *Goat-keeping on Money-making Lines*, which many of you may have.

Goat-skins also come in useful for sale or for the owner's use. They can be converted into rugs, mats, soft uppers of boots, gloves, stockings, shirts, muffs, trimmings, furs, purses, shoes, foot-warmers, tobacco pouches, and the like.

Goat's-hair is made into fabrics, robes, gloves, stockings, scarves, shawls, etc., and across the water the Angora goat is bred extensively for its fine silky hair, known commercially as mohair, and used widely in the manufacture of plush, not to forget dolls' wigs of the best quality.

Goat's manure in America is regarded as a commercial article of note. A mixture of goat and sheep manure I have in mind sells at over £6 a ton in the States with a guaranteed analysis of $1\frac{1}{2}$ to 2 per cent. ammonia, 1 to 2 per cent. phosphoric acid, and $3\frac{1}{2}$ to 4 per cent. potash. It is highly recommended for greenhouse use.

The ideal hutched table rabbit should weigh $4\frac{1}{2}$ to 5 lbs. alive, making, when dressed, 3 to $3\frac{1}{2}$ lbs., which should be when the rabbit

is four months old if of a suitable breed. At Christmas, a larger carcase is in greater demand. One can kill by dislocating the neck (as with fowls), or by giving the rabbit a sharp blow with the edge of the right hand or a heavy instrument just behind the ears, the hind-legs of the animal being held in the left hand meanwhile—head downwards. To make the flesh white, a sharp knife is then entered into the neck just below the ear to sever the jugular vein, and to allow the carcase, when hung up, to bleed freely. Make an incision in one of the hind-legs in the hock between bone and tendon, and pass the other foot through the opening, cutting the back of the hock to prevent the foot from slipping through. Draw legs tight and hang up on a beam. Skinning is best done when the carcase is freshly killed, although it can hang in its skin if for home use for a time, in which case paunching is done directly after killing. Pinch up the skin covering the belly and cut it with a knife for about four inches, then with the hand separate the skin from the carcase along the back, sides, and quarters. Having pulled the legs from the skin, draw the latter downwards over the neck and head, cutting through the attachments at ears, eyes, etc. Next remove the entrails, leaving the liver, heart, lungs, and kidneys intact.

Unless shaped and dressed in the Ostend style, the big salesmen prefer to have the rabbits in their skins, and some ask for live delivery. For private customers, and for marketing in Ostend style, the carcase is dressed and minus its skin. The carcasses are placed close together on shelves (equal sizes in each row) with a board on top of them and on this stones or weights. This spreads out the thighs and gives each carcase a plump appearance. The fore-paws are chopped off and the stumps tucked through the first and second ribs, whilst the hind-legs are removed to within an inch or so of the hock, the fur being left on the part that remains. The carcasses should be sent to market in boxes with white grease-proof paper top and bottom and between the layers. The carcasses should be packed closely for neatness and to prevent bruising, and in hot weather a piece of white paper that has been soaked in a very weak mixture of permanganate of potash and water, and the liquid squeezed out, can be placed inside each rabbit to keep the interior sweet. Boxes need to be ventilated and slatted tops should be provided, loose corners being packed with clean, soft white paper. Send the produce by passenger train (owner's risk) if the market warrants it, and use printed stick-on labels (not tied-on ones, which may get detached) carrying the producer's name and address of farm. Rabbits sent to the market in their skins in slatted boxes

do not need such careful handling as the dressed carcasses. Whiteness of skin is a desideratum. It was in September that the Ostend rabbit used to come over to our markets from Belgium, the best season running from September to May, with trade good throughout the year.

Owing to the shortage of the more expensive skins since 1914, those of the tame rabbit have had an excellent demand, and the furriers have perfected the handling of them. There is no limit to the manufactured articles for which rabbit-skins are used, and they include: imitation seal-bags, hats, bonnets, hand-bags, purses, tobacco-pouches, money-bags, slipper-linings, cloak and coat linings, fur motoring gloves, perambulator rugs, mats, hearth-rugs, foot-warmers, fly-fishing accessories, toy-making, furs, muffs, fur-trimmings, etc. The handy housewife will convert some of the skins into such useful articles as under-waistcoats for "hubby," to keep out the nor'-easter (and remember that when you take to the land you need to discard your dancing shoes and hit upon a suitable outfit), bedroom slippers (fur on the inside), children's muffs, and hat-trimmings, etc. The curing of the skins will depend upon the markets. Some dealers ask for the skins to be merely flayed and air-dried, whilst others demand properly finished skins, and not a few buy skins that have been simply turned inside out and air-dried (hung on a line in the open air for a few days, without being fleshed or stretched). The rougher and "throw-out" skins come in for the making of felt hats, the fur being cut off by machinery and the pelts being handed over to the makers of gelatine, jujubes, glue, and size. Some skins are used in their natural colours, whilst others are dyed. Silver-greys and white are popular natural colours, and all skins should be graded into colours, sizes, and quality. The best prices are realised for the winter skins from November to mid-April.

Where Angora rabbits are kept the hair has a commercial value, and marketing channels for it are now available in this country. It is manufactured into scarves, and woollen goods, and small quantities go towards the stuffing of chair and sofa cushions for invalids (suffering in particular from spinal, etc., diseases), fancy goods, etc., soft feathers being often used as make-weight for such stuffing purposes. The Angora rabbits are plucked at regular intervals, and the yearly average of silk from each animal exceeds 12 ounces.

The common method of killing a fowl is by dislocation of the neck. The legs and wing-tips are taken in the left hand with the back of the bird uppermost. The head is then taken between

the first and second fingers of the right hand with the comb in the palm of the hand and the fingers closing round the neck close up to the head. With the bird posed across the right knee, the neck is given a sharp, longish pull, and the head is bent sharply upwards at the same time. A "lady's" way is take a bar of iron 3 ft. long and place it on the ground with the right foot on one end. Next take the bird—head downwards and breast towards you—by the legs and place its head under the bar, afterwards putting the left foot on the bar at the other end. A sharp pull upwards will dislocate the neck, and this plan can well be adopted for birds of the larger kind. Plucking promptly follows killing, the operator sitting in a low chair holding the bird by its legs, head downwards, and having a receptacle underneath for the feathers. The simplest order for plucking is: (1) breast, (2) neck, (3) back, (4) wings, and (5) tail. Stubs must then be removed by means of a blunt knife and the thumb. All long hairs must be singed off by holding the bird over a gas-jet, wiping off any pieces of black with a clean towel. Some use a screw of paper or a straw. After washing the bird's feet, place the carcase, with others, in an L-shaped trough, breast downwards, and place a board on top with weights on this. Remove the carcasses when cold, and grade into sizes. If the London markets are being supplied, use light crates that admit of ventilation, put a layer of straw at the bottom, then a row of chickens, and so on, with straw as the top covering. Pack the birds tightly and breast downwards, and for the best trade use grease-proof paper instead of straw. In warm weather remove the intestines, and with each package of graded chickens enclose a note giving number of carcasses and weight and repeat same in a covering letter.

It usually happens that the salesman prefers to truss the birds, but every small farmer should master the art of trussing fowls, because where he supplies private customers the carcasses will have to be neatly prepared. With the bird, breast downwards, on the table, pinch up the skin at the back of the neck and cut a slit with the trussing-knife. Make the incision towards the head 2 ins. wide by 3 ins. deep, thus leaving a flap to cover over the aperture after the neck has been removed. Next cut through the bone of the neck one inch from the body, but do not cut through the underneath skin. Pass the knife upwards between the bone and the skin, and cut off 2 ins. nearer the head. The skin so left will pull over the aperture well down the back. Throw the head in the refuse bucket and place the neck on the giblet plate. Peel the crop, and, passing two fingers down the neck-hole loosen the

lungs and other organs. With the fowl now on its back make a cut between vent and tail-piece and remove all internal organs with the fingers. Throw away all except liver, heart, and gizzard, and the latter cut open to remove the grit-bag or inner casing.

With the bird on its back, press down the thighs towards the head and take a packing-needle and a piece—eight inches or so long—of white string. Pass the needle and string through the fold of the leg right through the body and out at between the fold of the other leg. Now turn the bird over and pull the wings over the back, locking the tips so that they hold in position the flap of skin covering the neck-hole. Pass the needle between the bones of the second joint of the wing then under and up through the skin of the fore-wing which is folded back. Continue the needle through the fore-wing and out between the bones of the second joint of the other wing (just the reverse) and tie the ends of the string together at the starting point. Run a second length of white string through the thigh-bone of one leg right through the bird and out at the other side in the thigh-bone of the other leg, tie the string tightly over the thighs just below the hocks. Cut off the legs, and the bird is ready. The local markets will take chickens either trussed or merely tied up—ribbon looking daintier perhaps than string.

Many channels are open to the small farmer for his table chickens. First of all there is the "higgler" who calls at the door (equipped with a pony and trap) and buys lean and half-fatted chickens alive, taking them home and adding the finishing touches to the produce ere himself marketing them. It is convenient to deal with him as it saves labour and trouble of killing, plucking, and trussing; but he needs his profit, and, as he sells to a salesman who also looks for a return, the plan has its drawbacks. You can test this by doing a little higgling on your own. Then there are local poulterers, and the London wholesale markets, and the London and provincial commission agents or salesmen. If you support these you must be on your guard, as often high prices are paid for the first consignment and the producer gets next to nothing for the second dispatch. The latter may be sent in response to a wire or a letter congratulating the "new" client on such splendid produce and asking for the prompt dispatch of another consignment. This arrives "according to plan" on a market of plenty and prices are low. Sometimes the second consignment is never paid for, as the salesman or merchant is a "shark," and disappears only to start his tricks again later. You must, therefore, get to know with whom

you are dealing, and here a personal call will be preferable to any references. Get to know what the firm wants, and be sure to send high-class graded chickens or produce. Let the merchant see that you send the right class of goods, and are dependable; that makes all the difference in returns and future orders. Never market low-grade and high-class produce in the same package, or returns will be reduced.

Finally we have the private customer, who after all is the most profitable person to deal with, top prices being realised for the right class of article. Best prices for table chickens run from April till June, although prices are good all the year round. The spring chicken is the best payer, and chickens around 4 lbs. each are liked. During the Jewish festivals poultry is in demand, but heavy fowls are called for, and this enables one to market fat old hens at top prices.

Ducklings are killed by dislocation of the neck, or by means of a heavy blow on the head, when a sharp knife is inserted in the roof of the mouth just below the eyes to sever the arteries of the throat. With the carcase hung up—head downwards—for five or ten minutes the blood will drain into the head and neck and whiten the flesh. After plucking and stubbing, the placing of the carcase in cold water for an hour or so will remove the animal heat and add to the keeping powers. Ducklings also need shaping, being placed on a table or shelf, with breasts downwards and heads hanging over and a board and weights placed on top. In plucking the feathers should be left on the lower half of the neck and on the last joint of the wings.

Turkeys, like other stock, are fasted for twenty-four hours ere being killed. The bird is hung up by the legs with its wings crossed and is then stunned by a sharp blow on the back of the neck. A knife is inserted in the roof of the mouth to pierce the brain, and the carcase is roughly plucked, except head, neck, and pinions. Each is marketed, for preference, in a linen cloth that has been previously dipped in skim milk.

When killing a goose, tie its wings securely and secure the legs also with string. Thus tied, suspend it from a hook and stun it with a sharp blow and pierce the brain with a sharp knife, as in the case of turkeys. Pluck whilst the carcase is warm.

There are three kinds of geese marketed :* (1) *green* goose, marketed at three months of age before the wing feathers begin to drop, (2) *stubble* goose, which passes through the grazing stage, is hand-fed for about a month, and then placed on the stubbles and marketed, and (3) *Christmas* goose, which leaves the stubble and

goes back to grazing, being penned up and fattened for a few weeks before Christmas.

The turkey can be marketed in November, December, and February. Any ready in November should then be disposed of, and any backward ones might be kept on till February. The Christmas turkey, however, must be the mainstay, and after the birds have left the stubbles they need to be penned and fattened up. A barn or shed, with suitable enclosure, makes splendid confined quarters during the few weeks of fattening off.

Ducklings are marketed at from ten to twelve weeks, when they should scale 4 to 6½ lbs. each. They must be sold just before they moult into their adult plumage, otherwise, if one allows the pin-feathers to grow, the ducklings begin to lose weight, and both quality and price are reduced. With birds put up to fatten, there is always the period when they are "ripe" and ready for market, which should not be overpassed. Best prices for ducklings rule from January to March, with a drop from April to July, and many continue to market produce into September. The ducklings can be sent to market in flat hampers or crates—breast downwards—two layers to each receptacle with straw at top and bottom and between the layers, and with grease-proof paper next the carcasses.

Feathers should prove a remunerative asset, and particularly where table ducklings, chickens, goslings, or turkeys are reared. In the case of ducks the down should be separated from the feathers and quills should be discarded. Whites, too, should be kept apart from coloured feathers, as the former fetch the higher price. A well-ventilated loft makes a good store place for feathers, these being placed on the bare boards and turned occasionally by the aid of a small branch of a tree with twigs left on at the end to resemble a "fork." In the case of hens' feathers, those from the back, breast, and fluff are required, and must be kept to colours (particularly the white ones) and from quills and tails. They can be stored in bags through which the air can circulate, the receptacle being hung up in a dry, well-ventilated outhouse. All feathers should be saved, a point most poultry-keepers neglect. All birds that die should be stripped of their feathers. Manufacturers of fishing tackle are in the market for feathers, as are usually the merchants who advertise in the specialist poultry papers for supplies. One should send for the price-lists and mark well the methods of preparation and grading desired by the selected firm. Feathers from ducks should also be marketed apart from those of hens.

As regards new-laid eggs, these should be marketed two or three

times weekly, or even more regularly. A great deal of speeding up is necessary on methods at present, and in the past adopted by the general farmer. Collected twice a day at least, they should be stored in a cool place, and gloves should be worn when the eggs are handled—even in collecting them, in order to preserve the bloom. Nesting-material and nesting-sections must be kept scrupulously clean to avoid dirty-shelled eggs, and any dirt must be removed from the shell by the application of a little Monkey Brand or Vim, the egg being then polished with a dry cloth. Keep eggs away from ill-smelling goods, and remember that unfertiles market and keep better than fertiles, *i.e.* where males are running with the layers. Grade the eggs carefully, putting on one side small and irregularly shaped ones, also any that are thin-shelled or abnormally large. Keep "throw-outs" for home consumption. Study colour and pack white-shelled eggs in one box and brown-coloured ones in another, and see that each receptacle has eggs of the same size. Test all eggs for dark contents, etc., by holding each up to a strong light so that the interior can be seen. Higgles in plenty will call at the door for eggs, but other channels should be tapped. There are hotels, dairies, private customers, restaurants, and so forth, where the eggs can be marketed without passing through the hands of middlemen, and finally there are the London salesmen. Much will depend upon the number marketed, and contracts should be booked well ahead and at agreed prices.

Returnable egg-boxes (with internal sections to take the eggs) holding from 120 eggs (a long hundred) upwards, can be used, and dividing sheets should be kept clean and renewed as desired. In the box prior to dispatch enclose a note on the farm's official paper giving the number and weights of eggs and repeat same in a covering letter. Get the salesman to know and value your eggs and then he will look forward to your consignments.

The preservation of eggs is a branch that should be mastered, as the process is cheap, and if the eggs are sold they yield a profit, whilst they can be used in the house in certain seasons to save the more expensive new-laid. The cheap summer egg will pay for preserving, and egg-preservation will help to average the egg-supply all the year round.

Stock birds are usually dispatched in returnable baskets, and it is well to send them on approval. A few postcards sent to leading breeders for their respective catalogues will make the novice acquainted with the customary terms of trading, which, however, should be improved if possible rather than copied automatically. Originality is always my key-note, as far as it is advisable and sound.

Extracted honey sold for the retail trade is usually put up in 1-lb. screw-top jars, which should carry an attractive label with the producer's name and address thereon. For the wholesale trade large tins of 28 lbs. each and more are used. Sections of honey can be served up in a dainty manner. When dispatching jars of honey, have the box divided into sections, and, having put in a good bottom depth of hay, place in the divisions and the jars, wrapping each of the latter in paper and finally hay. Then place a final layer of the latter on the top. Ordinary sections of comb-honey are wrapped securely and individually in grease-proof paper ere being packed. The honey should be graded according to quality, and a high price should not be fixed until the producer has worked up a name and clientèle. Since 1914 the public has become more accustomed to the taste and uses of honey, so that in working up a custom the producer will not have so difficult a task as prior to 1914.

The disposal of the milk must be left to the choice of the small farmer. Much will depend upon quantity as to whether or not it is sent to London, also the nearness or otherwise to the railway station and main line connection. For smaller quantities he might meet the local demand either by sale to dairies or retailing the milk himself.

Butter is best put up in $\frac{1}{2}$ -lb. and 1-lb. lots. The "brick" shape is perhaps the commonest form, the size for a 1-lb. being about $4\frac{1}{2}$ ins. by $2\frac{1}{2}$ ins. deep and $2\frac{1}{2}$ ins. across. After being worked into shape with Scotch hands, a suitable print or design should be worked on the top by means of the edge of one of the Scotch hands or a proper printer. Rolls can be made if desired, or round pats. Before sale or dispatch each lot is wrapped neatly in dry, grease-proof paper, and where needed make-up cardboard boxes carrying the name and address of producer can be used to pack the pats in.

Cream can be put up in many kinds of dainty receptacles, whether jars, jugs, glass bottles, or cartons.

The cultivation of herbs is quite a speciality in itself, and should be treated as such, because, to get the best returns, producers should work collectively in marketing and growing. One usually sees persons advertising for certain herbs, and the Herb Growers' Association acquaints its members of plants in demand. The grower must master the art of drying the herbs properly, and they should be dispatched in air-tight tins or containers. Herb-growing in this country is a new industry.

The gathering and marketing of fruit may be regarded as one

of the leading factors in successful fruit-growing. It is a subject that must engage the careful attention of all small farmers who grow fruit to any extent. There will be crops like cooking-apples and gooseberries which will be marketed unripe and early, the thinning out improving the chances incidentally of that fruit left on the trees. The mid-season and soft fruits will be sold as ready, and the late crops of apples and pears must be left on the trees till they are ripe, when they must be gathered and stored. To touch lightly on so wide a subject would prove misleading perhaps, so that I will continue my main policy of pointing to special factors leading to success. In the first place a suitable store-place will be necessary, although those in a small way need not go to the expense of erecting a special building. Then the producer must be ready for a glut, and know what steps to take to combat the same. The making of jam, drying and canning of fruits, fruit-bottling and preserving, are all subjects that must be mastered by the producer, or, better still, his wife and help-mate. The canning of meats, the making of pickles are subjects allied to small farming, and the wife should know her "recipe" book well, not only to supply the home larder, but to turn to good use any glut of produce, be it fruit, vegetables, or meat. Since 1914 these branches have romped along rapidly, and useful experiences are now available in many good books and publications.

As I have stated, small farming is made up largely of the making and taking of opportunities, and marketing has the final say in matters. The average would-be Arcadian of to-day is quite clearly a man with business experience, and I look forward to some original methods of marketing. As a key-man, it will be his special duty to find and open up channels—and the most profitable ones—for the farm's produce. The first lesson he will learn is that smart stationery means additional business. Do not argue that you are only a small holder, and do not need attractive note-head paper! A smartly designed and well-printed memo. bearing the name and address of the farm and the leading specialities will carry weight with all you deal with, and, what is more, raise materially the prices received and asked for, whether they be for stock or crops. And the progressive one will not stop at one design, as one memo. may be "general" and another may cover livestock only. Then there may be various grades, so that the expensive stationery can be reserved for clients whose letters of enquiry call out for same. An illustration or two of the farmer's stock or farm will give the enquirer at the other end a general idea of the man he is dealing with, confidence being thus inspired, and that is the objective.

The cost of a typewriter will sooner or later be well repaid; but, whilst it may be used for certain clients, the "fist" may be preferable with working-men enquirers. A type-written letter to a small backyard poultry-keeper might be considered by him as too cold and official, after the nature of a lawyer's letter or an epistle from a Government department. By a business man the letter would be appreciated. So it is, then, that the small-holder must be a smart detective where his correspondence is concerned.

The personal element will not be lost sight of, and that is the surest way to work up a clientèle on the "snowball" principle. There must be no "apply to manager," or "Please write my uncle, Mr. Jones"! The small farmer's name must be hit home in every way—in advertisements, in letters, catalogues, stationery, and so forth. And every letter should be signed in bold, inspiring long-hand.

Then the progressive man will not be afraid to advertise both locally and in papers devoted to the branches he specialises in. Nor will money spent in the production of smart leaflets and catalogues be begrudged. "Nothing venture, nothing gain." Behind every drop of *ink*, however, let there be a good hard *think*! The catalogue will be well illustrated with views of stock and farm and the queries of novices will be sympathetically answered. If that should prove too laborious, engage the services of an expert who is accustomed to answering queries of the sort. He will probably charge a small fee per letter, but the main object is to tell all querists what they wish to know, even if the questions *to you* appear silly and unnecessary. You are out to build up a business and courtesy goes a very long way. Ere long you will get some kind customer who wishes to know how old you are, or if you are still single—well, tell him; it may so happen that upon your reply depends whether or not he tells all his friends to buy from such a "jolly good sort as you."

The original man will have a good sign-board erected facing the road bearing the name of the farm and the specialities—something that even the motor-racer cannot pass at sixty miles an hour without stopping to see what it stands for. Curiosity is a funny thing, and it brings business. Underneath the sign have a small board hanging, whereon can be chalked or marked up in some way such produce as is available at the time—strawberries, day-old chicks, honey, mushrooms, spring chickens, cut flowers, and so forth. £ s. d. taken at the door is money down! A neatly printed card setting out the specialities of the farm will be handed

to each customer, and you will find in time that bookings in advance will be plentiful.

One warning to the small farmer—avoid a tongue-twisting address. "Thomas Atkins, Esq., The Farm, Oxford," is an example of what can be carried on the tongue, and it rings better than "Harry Arthur Thomas Atkins, Esq., End of the Lane Farm, Shotover Road, Banbury, nr. Oxford, Oxfordshire." When a man can carry the address on the tip of the tongue, he can forget half of it when telling his friend to buy some chicks from "Mr. Thomas Atkins, of Oxford," and still it will find you. And be sure that you have a policy or stunt in each line you touch—one you can hit home every time, and one you can back up. Take the case of dogs: well, you can specialise in the "Poultry-proof Airedales"; and of poultry, the "Non-broody Reds." When starting, try to buy stock that will enable you to carry out your idea right away.

Letters to the editors of your favourite papers will all help to bring your name forward; and more so if you advertise in the selected journals. Write authoritatively on anything that interests you which you see discussed in the columns. Join specialist and local clubs, give special prizes here and there, lecture now and then, and never turn down or neglect an opportunity of advertising yourself quietly.

Keep names and addresses of all customers and enquirers carefully filed, and see that they receive your literature as ready. In good time send them the next season's catalogue, with a nice personal letter. Do not hurry such matters as letter-writing. A man may set out to buy some butter from you, and you may in the end sell him a cow instead, or as well—that is business, and what clever "key" work will do. And be sure to send nice follow-up letters to any who do not buy as the result of your first reply.

Do all that you can to get direct to the customer. Your fowl-manure may be used on your holding, but if it was not needed an advertisement in the leading gardening journal *Garden* will find you customers. If you can get a better price for any produce with a little extra trouble the latter is well repaid. Family baskets might be advertised both locally and in the daily press, and particularly in the high-class sporting ladies' and gentlemen's magazines or journals. You may decide to make up baskets containing a selection of farm produce. Local shopkeepers may be selected as agents on commission and the corn-chandlers may consent to have a display of day-old chicks in their windows with "orders taken within."

The question may arise as to the going out for custom. For

instance, many small farmers are on their land for most of the week except when they go round with horse and cart and sell their produce to housewives and shops in the nearest town or city. Now one must not be off the farm if the latter is to suffer, so that, as the key-man, you may find it well worth your while to employ extra labour, so that an employé may go the rounds with the produce, whether it be vegetables, fruit, milk, eggs, or what. One might eventually open shops in suitable towns near by where the farm produce can be sold. Then direct dealing with the public can be achieved. Persons of responsibility can be employed to manage such concerns. That plan may open up other lines, such as the buying of produce in the country and retailing it at a profit in one's own shop or on one's rounds as extension warranted. Out-farming could be adopted, whereby others reared stock for you on agreed terms. A higgling department might in time be set up, the employé spending his time touring the country in season for half-fatted chickens equipped with a little ready cash and a horse and cart. These chickens would be brought home, placed in the fattening coops or pens, and finished off. They would not be known a short time after arrival owing to increased flesh-production, and a good profit is certain, for the people having these surplus cockerels find them usually in the way and are glad to part at very low prices.

Even the children's pets can be pushed in the child-owner's name in journals devoted to the cult of same, and in ideal children's publications of the general kind. Most of the specialist papers run boys' and girls' sections and junior clubs.

I have given a few examples to show in a small way how opportunities can be made and taken, and I hope every one of my readers whose case fits in with my ideal will study the business end, which is, after all, what counts so heavily.

It will not be out of place to give here the figures for some of the foodstuffs imported into this country in 1913: Butter, £24,083,658; cheese, £7,035,039; milk, £2,219,173; eggs, £9,590,602; dead table poultry, £992,463; vegetables, £5,492,113; fruit (excluding tropical), £4,392,098; margarine, £3,917,701; grain and flour, £85,494,628; table rabbits, £781,376; beef (fresh and salted), £16,181,903; mutton (fresh), £10,907,992; pork (fresh), £1,368,360; pork (salted), £297,135; bacon, £17,428,881; hams, £3,668,251; lard, £5,552,462. How much of the above, totalling over **£200,000,000**, that we paid out for imported produce in 1913 are you going to claim as your share of "a living from the land"?

CHAPTER XX

SELECTING THE SMALL FARM

"Where bad's the best, naught must be the choice"

IN selecting a farm it is well to remember that there is no *ideal* establishment for each and all. You may find in your travels a most charming farm, but it will not please you in one or other respect. That is always the case, and "buts" and "ifs" must not be allowed too much scope, or you may have the place taken by another person.

The first thing I should expect on my small farm would be plenty of outhouses. These can be put to a hundred different uses. One will do nicely for an office, or an incubator shed, or a workshop, or a store-place for small appliances. And the uses can be continued *ad lib.*: goat-house, cow-shed, laying-house for fowls, stable, tool-shed, food-store, hen-hospital, rabbitry, brooder-house for early chickens, fattening-shed to accommodate table chickens, and so on. When looking over the place, too, careful stock will be taken of existing buildings such as a piggery, poultry houses, cow-sheds, and so forth.

The second factor of importance will be the number, condition, and kind of fruit-trees on the place, and I should expect a few trees on any farm I chose. The fruit will help towards the first year's rent or expenses. Then the would-be farmer will weigh up in his mind, remembering the text of this book, in what way the farm is adaptable to the various branches he will take up. A pond may suggest ducks, a wood pigs (on the open-air system), and so on. Note will be taken of the branches the outgoing tenant supported, and enquiries made to see what returns he was able to get from each.

It will always pay to make local enquiries, and more so if a ready-going concern is under consideration. The station-master may accidentally give a useful hint or two, also the local postman, and the proprietor of the "Cow and Lamb," not forgetting Mrs. Knowall, who serves teas and refreshments to tourists. The best

time to visit an estate is in the winter, if one suspects water-logged or flooded ground; but local enquiries should be the means of ascertaining how the land lies. Examine the ditches carefully to see if they have been kept well cleaned out, and if you notice a small stream make sure that the farmers above you are in the habit of clearing away stoppages likely to flood the ground below.

Soil is an important matter, and here the beginner might well have an expert with him, introducing him as his uncle or brother-in-law to allay suspicion. Attached to each specialist paper there are experts whose services can be procured, and a personal note to the editor will bring recommendations. Particularly should it be left to the expert where one branch is to be the dominating speciality. If along my lines poultry are to represent the latter, a gravel or chalk soil will be found best. Damp and exposed sites are undesirable, as is clay. A good drainage is needed, although where the intensive type of houses is to be supported the birds are kept in during the winter on inclement days, a point to be allowed for if the soil is merely on the heavy side but dry. One would need to correct any faults by special housing, choice of breeds and management of stock, on which matters the expert engaged would be consulted. With land that is at all damp early rearing cannot be managed, as it is late in the season ere the chickens can be placed on the grass. But the presence of plenty of good sheds would help to counteract this, for early chickens could be reared therein under cover until old enough to go out permanently.

A nice site should be looked for to represent the chicken-rearing grounds, and any belt of trees likely to act as a wind-screen should not escape the eye. If clover is plentiful the selected spot will be ideal for chicks and growing poultry. A position should be looked out for the breeders, which will also do well with a belt of trees or a hedge or wood as the wind-screen and protection from the bitter elements. In fact, the wire-runs could be extended into the wood a little for shade and protection. Sloping ground is an advantage, but one must avoid an extreme, remembering that the pushing of even a barrow of food time after time means extra labour. And too much of a slope does not help fertility, although one can erect the breeding enclosures across instead of with the slope. It is well to ascertain if poultry have been run on the farm before, if to excess, and for how many years. Presence of clovers will denote sweet ground, and one can apply my usual test. Take a sample of the soil and place a piece of blue litmus paper therein, leaving it for half an hour. If the soil is sour the paper will have turned red, the depth of colouring deciding the extent of the

sourness. After you have taken your farm it is for you to study the question of liming and manuring the land, and tending it as it should be. That is a matter you will be careful to study up, as so many overlook it.

The location of the farm must also be taken into account. Where it is proposed to foster a retail trade "at the door," so to speak, the ideal farm will be situated on the main road and have a prominent frontage. Such a site allows of full publicity and a large and attractive board—bearing the specialities of the farm—can be erected to catch the eye of passers-by and motorists. Nearness to the station and on a main line will be aimed at as there will be packages and stock going to and fro. Good markets will be close to hand, so that a "home" trade can be fostered. If, too, there are large private residences near the owners will represent good customers for all manner of produce, and particularly out of season, when the highest prices will be paid. A personal call, or well-thought-out letter to each resident (with attractive literature setting out the farm's specialities enclosed) will be the means of working up a clientèle.

As to whether the farm is purchased or rented this will depend upon capital available. It is preferable to buy an estate, as then the owner can erect whatever buildings he prefers. If one rents an estate it should be taken on a long lease—four to seven years or more—as it is well not to change quarters when one is establishing a name, and particularly if livestock represent a leading branch, and the farmer is finding custom by advertising and by recommendations. In the agreement there should be a covering clause that poultry-houses can be removed at expiry of tenancy, and that reasonable compensation will be paid by the landlord for fruit plantations set up, and so forth. If there is an option of purchase so much the better. It usually happens that a man is attracted by the offer of a ready-stocked farm. If this is decided upon, enquiries will be made to ascertain the reasons of sale, and a close study will be made of the account-books, trading bills, and the performances of the stock. One might engage an expert to value the stock and plant separately. Another important item will be the ascertaining whether or not the previous tenant has by his unbusiness-like methods got a bad name for the farm. Sometimes a certain amount is asked for ingoing, although one will make sure that the amount asked is reasonable.

Size of farm will depend upon the branches one desires to take up, and also on the amount of capital available. The man with little capital need not be at a disadvantage, as there are ways

and means of working up a farm step by step. Shortage of capital may compel him to take a small acreage, but if he finds a nice little place where further land is available if he needs it when he extends his activities, that will be advisable. An expert gardener who is short of capital may decide to seek a post in the locality whilst he sets the ball rolling at home. An inexperienced Arcadian without sufficient capital may go for a year's training and then seek a post. Having obtained the latter, he would commence to build his "little nest" at home, his regular weekly salary maintaining him until the time that his extensions bring in a satisfactory return.

The system of farming-out which I have dealt with elsewhere enables the farmer to accept a reduced acreage. He arranges on terms for others with land in the neighbourhood to rear or grow for him, and in this manner rent is saved. An advertisement in the local newspaper setting out one's terms will bring to light plenty who are willing to accept the same. It is always an advantage to have the option of renting (or purchasing) more land adjacent with a view to later development, an item that should not be overlooked.

As I have said, the ideal farm will have a business ring about the address, and for the sake of publicity it will be easy to find. One will do well to encourage visitors to the farm where livestock are to be sold. In catering for visitors, however, they will call upon other farms in the district if unable to find the one they have travelled down especially to see. A plan of the farm and its approaches from the station will help matters if this is reproduced on note-head paper and in catalogues. In fact, a special leaflet can be devoted to this item, so that when a visitor is being invited the plan can be enclosed. Finger-posts can even be arranged on suitable spots, a small rental being paid for each to the owner of the land where the post stands. Such represent a good advertisement for tourists and passers-by also. It pays to encourage visitors, and to invite the secretaries of local societies (in and out of the county) to bring down parties from among the members and to entertain them after showing them round. One does not stop here, for there is the press propaganda to follow such events. All the specialist papers must have a few lines about the lecture and tea you gave sent in, preferably by the secretary of the society concerned.

When one is in search of a suitable farm the tendency is to avoid a locality where another farmer is working, and here I refer in particular to poultry-farming. Thus, the person seeks an out-of-the-way place to be all on his own, much to his detriment. Now I should prefer to set up near another man, because

I should make it my business to make a "pal" of him. Co-operation is good if all in the scheme are conscientious and unselfish. Should you find yourself so located you will endeavour, then, to get on more than speaking terms. Invitations to tea and dinner, and so forth, may start the ball rolling, and, if this fails, a tennis-lawn or a billiard-table even may do the needful. The established poultry-farmer may be glad of your help, paying you well for incubating some of his eggs and rearing the chicks for him on agreed terms. Maybe you will be drafted a pupil or two, or be offered orders in breeds you keep but your neighbour does not. You may have a journey to the station that will save him a like visit, and *vice versa*. The same advantage lies in being next to or near a training farm, as you may secure any surplus pupils, or even board them, as a favour. You are, at any rate, getting a return, and your business programme will continue without the slightest interruption. Originality always scores, and if you are working up a clientèle your methods of advertising and so forth will get you to the top of the ladder. Brains always will out!

One often is asked which is the best county to select for operations. This depends rather on the branches selected, and on the marketing channels supported. If the small farmer is selling in the main stock, customers for which are obtained by advertising in the specialist papers, it matters little which county he selects, so long as he is near the railway-station on the main line, has good postal connections, soil is good, and there is every chance of working up a "home" trade in well-populated local towns. If produce has to be marketed, such as meat, eggs, vegetables, and fruit, London should be within easy distance, and if the farmer is situated midway between London and a seaside resort so much the better. Bucks, Herts, Kent, Surrey, Sussex, Essex, and Middlesex are popular counties, covering London markets. But there are other large marketing centres besides London, and one must weigh up the pros and cons in their entirety as bearing on the branches taken up.

Hotels will, for many years, provide a splendid market, but they need very careful handling. One London hotel I have in mind has paid between £10,000 and £20,000 for table chickens each year to foreign producers, which money is available for the home-producer who sends the right class of article. With the large hotels one must be in a position to handle and control larger quantities of produce, always well graded and perfect in quality. In answer to a wire or telephone message the sudden call for "extras" must be met. There are grades of hotels, just as there

are restaurants, but during the period of reconstruction it is fair to presume that the hotels will teem with business magnates and commercials. After so many years of bad fortune, the seaside resorts will be arranging in the years to come all manner of publicity stunts to attract Mr. and Mrs. John Citizen to take the bracing air. And, as most people have passed through a long period of strain, they will not want much persuasion. There will probably be years of reconstruction as regards health. Again Europe will attract visitors from all countries, and England will be the jumping-off ground. People will come from all parts of the world to see the European battle-fields, and the Yanks will be over in numbers if only because our ties of friendship and comradeship have been strengthened. Hotels and seaside resorts will therefore play their important rôle in caring for the visitors, and this point must not be overlooked by the progressive landsman in selecting his farm.

A horse and cart will prove an essential, perhaps, for journeys to and from the station and local markets. Good use of same should be made on return journeys, where possible, by the collection of waste foodstuffs and swill for the stock on the farm. One must study *£ s. d.*, however, if capital is short, and the donkey or a big, strong utility draught-goat, or even a hand-cart, have their uses as alternatives in certain cases.

The water supply will be enquired into. If there are lots of out-buildings a good supply of rain-water can be caught in galvanised iron cisterns. Lead or zinc pipes or cisterns are not used for rain-water on account of the dangers of poisoning. There must be a good water supply on every small farm, and the pros and cons of that available or likely to be made so will be carefully weighed up.

We will presume, then, that you have fully grasped the advice in this chapter and realise that there is no standardised or ideal place to be had. You will next wish to know what steps to take to secure a farm. In most of the specialist journals devoted to small holding, land, and livestock matters and in many of the daily newspapers advertisements of farms to let and for sale appear. These will be considered, and "want" advertisements will be inserted in such papers and also in provincial newspapers by the would-be Arcadian. The advertisement will need to be carefully worded to draw from those who reply full particulars as to acreage, soil, number of standing fruit-trees, distance from railway-station and markets, number of outhouses, and so forth. Counties can be stipulated if desired, and a box number for replies can be used

if one does not wish to disclose his name and address. And advertisements of different types can be inserted at the same time under separate box numbers—one seeking to buy and the other to rent, for instance, and a third to procure a ready-stocked farm. Estate agents there are in goodly numbers who deal with such properties, and their announcements are usually to be found in the channels mentioned. Their help will be solicited and enquiries made to see what they have to offer. Sometimes one notices a premium of £5, £10, or £20 offered to any one putting the advertiser in touch with the kind of farm he is looking for.

It usually pays to make enquiries in other channels as well. Repeatedly farms that represented bargains have come to my notice by accident. The owner has perhaps written me to know if I could recommend a good tenant for her farm, whereas had she advertised it she would have had no difficulty whatsoever. She probably knew nothing about advertising, or where to send the advertisements, and wanted a quiet piece of business. You can find such properties best by first selecting one or two counties which will suit you, and then advertising your wants in the leading county newspapers and also writing to the various estate agents for likely properties on their lists. Now, if you are faddy, you will spend a little fortune travelling in search of farms. The most economical way is to advertise and enquire in every approved channel at one and the same time. Next acknowledge the replies, and seek further details where necessary. Then group your approved offers into districts and arrange a tour on the cheapest lines by way of travelling, making appointments to "view" in each case. If you visit each farm as particulars of it come to hand, you will have to spend a goodly fortune in the long run. Many of the places that come your way will not be worth a visit, but unless you get right away full details on all the essential points you may find yourself undertaking a fool's errand.

From some of the sources I have mentioned I take several current advertisements, as they will probably be of interest :

Surrey.—Modern house, 5 rooms, 2 acres of land with sheds, rent 10s. ; a further 10½ acres at 10s. weekly, optional ; 25 birds, poultry-houses, brooders, incubators ; 200 fruit-trees ; pigsties, 3 breeding sows ; pony and trap and harness, tip-cart oats ; 3 sheds, glasshouse, etc. ; ingoing, £340.

Hants.—Freehold, double-fronted

10-roomed residence, 5 acres ; nursery ; 4 greenhouses (heated), 100 ft. long ; about 2,500 fruit-trees ; 2 cows, 9 heifers, 6 pigs, 22 fowls ; outbuildings ; everything included, £1,200.

Sussex.—For sale, charming well-known poultry farm, near Hastings, Eastbourne, Brighton ; about 1 mile station, sea-view ; nice 6-roomed house etc. ; 7 acres ; several very

large intensive houses, many breeding pens, brooders, incubators; 17 netted enclosures; about 250 first-grade stock; horse, trap, cart, hay chaff-cutter, goats, rabbits; Sussex fattening plant, dozens of sundries; price £630 or near offer; going concern, and a real business opening; rent, £28.

Sussex.—Cottage, 10 acres, £495.

Kent.—Fruit and poultry farm; London 1 hour; dry and healthy; 10-roomed house and 4-roomed cottage, 6 acres; 300-400 fruit-trees; 50 poultry-houses, 5 large sheds; rent £60 inclusive; ingoing, £300

for 300 pure-bred stock, appliances, etc.

Essex.—8-roomed bungalow and 15 acres, £600.

Essex.—Freehold land from, £25 per acre for small holdings and farms.

Suffolk.—Freehold, near station; outskirts large market town, Suffolk; near sea; fullest inspection; ideal climate, soil, etc.; poultry, cottage, 5 acres, £300; cottage and 17 acres, £500; two cottages, 37 acres, £750.

Essex.—15 acres; good house and outbuildings; station 1 mile; London 1½ hours; price, £700.

Many ex-soldiers will be taking up land and livestock pursuits for the benefit of their health, as will other Arcadians. Such will in many cases warrant the would-be Arcadian selecting a farm where the soil, conditions, and climate will suit his health.

Occasionally one finds a cottage within the boundaries of the farm in addition to the farmstead. Such may later on prove a real boon to accommodate students undergoing a course of practical tuition. And, bearing on the question of health, a farm established near a seaside resort should prove attractive to invalids who may be taken as paying guests or pupils, as a help whilst the farm is being established.

A look-out will be kept for any outhouse that can be converted into a business office. The latter adds weight to any farm where visitors are in attendance. What is more, it helps the business end along, because, if a room in the house is used papers are apt to be mislaid.

Where poultry are to be kept it will be well to make sure that the place is not troubled unduly with raids from foxes. In all cases stock should be insured to prevent any heavy losses from foxes, fire, thieves, and so on.

CHAPTER XXI

SELECTING THE STOCK

"No good building without a good foundation"

THE would-be small farmer, when procuring stock, must build up his house on a sound foundation. In far too many instances he buys the cheapest, whereas a few of high-grade quality will always beat a lot of inferior specimens at the same price. On the start a great deal depends, because the novice who is "bested" at the commencement of operations is sure to be downhearted and lack confidence in the future, even if he does not give up his programme entirely.

Now in the buying of stock you will bear in mind my dictum that rogues there are in plenty awaiting your cash. Therefore go canny, and safeguard your interests and purchases! To do this you can adopt the deposit system, which most specialist papers have, whereby the money is deposited with the editor until you notify him that the stock sent is approved of when he hands over the purchase-money deposited to the vendor. The usual custom of an editor, when asked by a novice which breeder or firm he can recommend as reliable, is to write in reply, "Please refer to our advertisement columns." That is entirely a wrong policy, because he well knows that many "sharks" patronise these columns, his employers preferring to have their cash as revenue than to keep the pages of their paper clean and thus safeguard the interests of their readers. If you can get into touch with any reliable person or firm willing to recommend a vendor such may be an alternative. The secretary of an important specialist club catering for the livestock concerned will probably give a recommendation if a stamped envelope is enclosed.

It is vital to select a reliable vendor, or you may never get just what you desired and what you actually paid for. And pay careful attention to the vendor's terms of trading, sending the stock back to time and as directed if it is not approved of.

Ere you purchase any stock you will do well to go into the pros

and cons of the whole question. Lay your objective on the table and select that breed or breeds which will fit in with your schemes. If popularity had to decide the question, I should need no better proof than that given me by the extent of the advertisement column in the leading specialist journal. The breed carrying the greatest number of announcements from breeders would be the most popular on my ruling. Having decided upon the variety, next procure the best specimens that your purse will allow, remembering that future progeny depend for their merits and value on the parent stock.

The next point to master is the examination of the stock on arrival. Where one has the services of a specialist expressly for the purpose, the outlay will be well repaid. There are points, however, that the novice can read up from approved text-books and which will stand him in good stead. If an animal is sold as an exhibition specimen, it will be exterior points that will establish its value. Here one will need the opinion of some one who is fully competent as an expert in that very variety. One might take the advice of the local (specialist or otherwise, but former preferred) judge. Perhaps it will be well to buy an animal with wins already to its credit, and then the purchaser has something with which to get his money back. By entering the specimen at a show, the judge's verdict will be useful, and a letter to the editor of one of the specialist papers might be dispatched, asking him to instruct his representative (usually attending the show to report upon the exhibits) for a detailed report of the animal. A nominal fee might be enclosed for the purpose. Or one might ascertain from the secretary of the specialist club the names and addresses of local members of repute who may agree for a fee to give a report. Experts attached to the various papers in the rôle of query-editors will usually undertake such work and often their private addresses are available. A stamped envelope for reply should always be enclosed. As regards the utility specimens, one is best guided by the kind of progeny bred—that is the only sure guide to interior merits. A knowledge of the points of the breed concerned will be necessary to judge how near the animals are to standard or *vice versa*.

Newly purchased stock should be isolated for a short time ere being placed with the home flock to make sure there is a clean bill of health. Particularly is this quarantine necessary with poultry, for which I am sorry to say no outbreak of disease has compulsorily to be notified.

When buying fowls, be guarded against unnatural breathing,

ill-smelling breath, swollen eyes or faces, black or white combs, moist eyes or nostrils, greenish or yellowish excrement. Avoid fowls from markets which invariably are diseased, a note to those in the eastern counties in particular. Avoid cheap crossbreds, even though they are sold as first-crosses. The sorting is simple, for the vendor selects those nearest the first cross in colour. When you breed from them the progeny have plumage of many hues. Buy and breed pure breeds every time, unless you make your own first-cross, or buy genuine first-cross (progeny from mating of two *pure* breeds) for a special purpose, such as the production of table chickens.

The healthy hutch rabbit has bright eyes, smooth, sleek coat, sprightly bearing, slim body, also hardness and firmness at the loin. Be guarded against discharge from nostrils, ear canker (sufferer will shake its ears and evince pain if base of each ear is firmly squeezed, whilst brownish matter will be present in the ears), sores on feet, and skin troubles—missing tufts of hair, bare parts around eyes and base of ear, scurfiness of skin or eruptions.

One will also make himself familiar with those factors which give away the age of any particular animal. In the case of a young rabbit, for instance, the eye is bright and sparkles, the teeth are white and small, and the claws seem hidden in the fur of the feet. In the adult rabbit the eyelids droop, facial features are dull, the teeth are longer, thicker, darker in colour, and often broken, and the claws are long and curved. Such points can be altered somewhat by the “faker” in order to deceive, but the novice will take steps to know his “age” pointers for the stock concerned.

When you buy a young pig avoid the “Little Harry” kind—the miserable little pigling that is stunted in growth and looks a bad-doer all over. Piglings from a sow’s second litter are best, and the strongest are those that are biggest round just behind the shoulders in comparison with their length. When buying a sow be guided by her previous litters in order to get a good-natured, prolific, and free-suckling mother. The best purchase is a sow that has had her first litter, and is expecting her second family. The boar to avoid is the bad-tempered animal that is over-restless and sluggish, and which snaps at its feeder. As with does, the merits of a sow will be measured by the number of youngsters in her family, not only borne but successfully reared.

The ailing goat has that mournful look about it which asks for pity; her breath may smell, or the gums may be pale and appetite poor. Press back the eyelids and see that the eye-vein in the

corner of the eye is a nice red colour and make sure that the head is well carried, eye bright and full, nose dry, nostrils moist, gums and mouth a bright healthy red, limbs well moulded, and tail set on squarely. Avoid animals that are lame, or weedy, and which have bad or broken teeth. The body of the "likely" milking goat is wedge-shaped (like the bred-to-lay hen) with the greater depth at the hind-quarters. Frontal depth means flesh-production, and that is why the laying hen should have a low, roomy, soft abdomen abundantly clothed with down. The udder will be of a good size and thin and soft to the feel, not thick-fleshed. Shape of udder varies with the breed, but it should hang gracefully and evenly, and the two teats should be fairly wide apart and long and tapering, pointing in a forward direction. A twice-year goat represents perhaps the best investment.

When buying an in-kid or in-milk goat you will be wise to select a thoroughly reliable breeder or you may be deceived. Don't believe all you read in advertisements of the amount of milk given, rather go and see the animal milked. Remember, too, that the yield of a goat and her breeding decide the price asked; therefore you cannot buy a classy animal for a few shillings. Spring is the best time to buy an in-milk goat, as the supply is more plentiful than in the autumn. The best time to buy an in-kid goat is in December. A young kid should have plenty of size and the head and legs should be big in comparison with other parts. Guard against lame and small, stunted kids.

The ailing duck is usually to be found waddling along on its own behind the flock when they are on the move. It has a dejected appearance, and often appears to be suffering from cramp or leg-weakness.

When examining your purchased dog see that the breath is sweet, nose cool and moist, pupils of the eyes free from white spots (cataracts), ears free from inflammation or discharge, pads of feet free from corns, and skin free from eruptions. Walk the dog up and down to make sure there is no lameness, and with a whistle apply the test for deafness. A dog from eight to twelve months old and over distemper is generally best to purchase, unless one wishes to train the animal for certain duties, when a puppy of six to twelve weeks is advisable. Buy all dogs on approval. A bitch is cheaper than a male, but the latter is perhaps cleaner, and better behaved in the house. If one wishes to breed, however, he can buy a well-bred bitch, send her to stud, and start his kennel economically.

You will need a pony, and if you desire to use the animal for light tillage operations—ploughing and the like—and road work,

you will pick a sturdy young animal from about fifteen hands. Select one with broad and short back, short, stout neck, strong limbs, good feet, full breast, deep and wide body, and well-sprung ribs. Aim at a cobby, compact type of animal, and one that appears strong and workmanlike. Walk and trot him to see that he puts down his legs firmly and squarely without stumbling, is free from lameness, and easy in his actions. A pony of five or six years of age is a good investment, and it should be bought with a warranty.

As in buying a goat, so with the cow, you need to see the animal milked, and the yield weighed. With an in-kid cow there is also the element of chance unless the calf can be felt. Avoid old out-of-profit cows, and any with a "blind" teat or diseased udder. Many prefer to buy cows that have given from two to five calves. The milking-cow will have a long head, broad muzzle, fine neck and forequarter, broad hindquarters, large belly, broad well-formed udder, and four teats. The latter will be well placed apart and each will milk evenly.

It is well to ascertain from the vendor just how the newly purchased stock have been fed, so that the same menus can be adopted for a short time until the new arrivals get settled down to their fresh quarters. Then they can be gradually put on to the foods it is intended that they shall have. On arrival, feed the stock and also water them, but do not let them drink to excess until they have had a solid meal. For a few days visit them as little as possible so that they will not be disturbed too much. They will soon settle down to their fresh quarters.

In the choice of breeds tastes vary, but selection should depend rather on the objective in view, because if you have the wrong material no amount of clever feeding, breeding, or management will get you on the top rung of the ladder. The novice, where possible, should try to select from the approved list that variety which is hardiest and easiest to manage and breed. As an example, I quote the Silver Laced Wyandotte, which needs double-mating for the best results, *i.e.* one pen must be mated up especially to breed pullets (the cockerels bred being disposed of) and a second to produce cockerels (the pullets being useless, so to speak). Naturally if the Silver Laced and the White Wyandotte were of equal merit for the purposes desired, the White would have the novice's choice, because it is easier, being a self-coloured variety, to breed. Again, if you keep pigs on the open-air system, then prudence bids you to select that class of animal which is a noted forager.

CHAPTER XXII

FEEDING THE STOCK

"A field requireth three things: fair weather, good feed, and a good husbandman"

THE feeding of the stock is of vital importance to the stock-keeper, who must set out to discover the systems which give the best returns from the particular animals concerned. Once a mastery of this subject has been accomplished the owner will be agreeably surprised at the increased returns.

In the growing of crops the plough comes into use, and with it a roller, horse-hoe, light and heavy harrows, and so forth. If a deep ploughing is necessary, the small farmer may need two horses, and a heavier type of plough. Where, however, a shallow ploughing is necessary, he can get along with a light type of plough which can be drawn by a single horse. One must study the purse in this matter. If there is sufficient work for a couple of horses and the acreage warrants it, one might purchase two animals. On the other hand, one might loan a horse from a neighbouring small farmer, and in return let him have the use of your horse when he wants it. As an alternative, one can on terms get the neighbouring farmer to plough up the land. There is ample need for co-operation in the matter of appliances where the farmers are working on small lines, but the drawback to hiring or loaning implements lies in the fact that every one needs them at the same time. In such matters local conditions and special circumstances must play their part.

Of the root crops potatoes will rank foremost perhaps, and these (or any other roots) can be grown for sale as well as for feeding to stock. The small "throw-outs" are usually fed to stock, and the potato will form a good ingredient for most fattening mashes whether they be for pigs, poultry, or rabbits. Used in moderation, too, the potato can be worked into most menus for all classes of stock, thereby greatly reducing the cost of feeding, and, as is now well known, pigs and potatoes go hand in hand.

Mangolds represent a splendid root for winter use for all kinds of stock. They need to be kept in their earthen beds until after Christmas, and fed when perfectly ripe. When harvested in

October, or early in November, the green tops are fed to the stock, and the roots, after a few days' curing, are buried in earthen and straw beds till wanted. Early storing is necessary, as mangolds do not stand the frost like swedes or turnips, and more of the leaves should be left on them when they are buried than with most other roots. The golden tankard and long red have a higher feeding value than the yellow globe variety. The storing of potatoes, mangolds, etc., must be learned as the crops will need to be put by for later use.

Turnips should not be grown to excess, as they are rather scouring, and not so valuable as other roots.

Swedes can be told from turnips by their blue-tinged leaves, which spring from a neck at the crown—absent in the turnip. From May to June is the planting time—after the mangolds. The leaves are used when the roots are harvested, and the roots are stored for winter in pits or beds. The three roots mentioned—turnips, swedes, and mangolds—are usually run in conjunction because they follow on. The turnip is ready for feeding in the autumn, followed by the swede, and finally comes the mangolds in January or February, and it can be used up to May, as it has good keeping powers.

Field cabbages come in useful in the autumn, and especially for cows. The crop is a heavy one, but plenty of manure is necessary.

Field carrots, field parsnips, kohl-rabi, artichokes, green maize, clover, lucerne, hardy green turnips, kale, rape, green rye, vetches, and sainfoin are all crops whose merits call for consideration, according to the individual soils and requirements for the stock.

On the Continent artichokes are widely used in fattening rations even down to the rabbit, and in America they are grown as a kind of forage crop, the pigs being allowed to root up the tubers.

Clover and lucerne need to have more attention than at present. In America the status of every farmer is judged by his patch of lucerne, which is to him what clover is to us. Lucerne is in profit for many years, and when established yields several cuttings in the same season. It needs plenty of manure, and also a deep, dry, chalky, well-limed and well-drained soil for the heaviest crops.

Sunflower seeds may well be cultivated in all vacant spots, as, apart from the ornamentation as flowers, the seeds come in useful for the poultry.

It is usually argued that it does not pay the small farmer to grow his own cereals, but that is an open question. For instance, where one is in need of plenty of straw for the stock, the straw from the cereal crop represents a further asset. One must be guided

by the extent of the acreage, and how one is placed as regards the harvesting and threshing.

The small farmer will bear in mind that it is best to change the crops, so that the same kind is not grown on the same ground in successive seasons. This rotation of crops maintains the fertility of the soil, which is an essential. There are certain crops which do well when following others on the same ground—potatoes, for instance, after winter greens have been harvested—and this question will receive careful study.

Forage crops like rape, red clover, and lucerne can be grown especially for folding or pasturing pigs, etc., thereon. The art of fattening lies in keeping the stock growing all the time, and economically, and then relying upon a final and quick course of fattening to finish them off for the table. Now an acre of rape or lucerne will, when folded, keep from twelve to twenty pigs of 100 lbs. liveweight for four weeks, and an acre of lucerne or red clover will provide grazing for ten such pigs throughout the season.

But soiling can be adopted if desired, the forage crops being cut and fed to the stock, instead of the latter being folded thereon. And one can adopt any approved system of cropping which provides a sequence of foodstuffs all the year round. In the case of pigs, too, continuous cropping can be so planned that the animals clear one crop and then start on the next. Six crops may be grown, for instance, and the pigs be folded on each as ready. Thus as they finish off the sixth crop they are folded again on No. 1 section, and the continuous system continues.

As I have already pointed out, the cropping of land on which poultry are run in very large numbers can be practised, and many systems present themselves. The main idea is to sweeten the ground and rid it of taint which might otherwise follow as the result of stocking the ground so heavily. To each laying-house, for instance, there can be two runs—back and front—and whilst one is cropped the other is used by the fowls, and *vice versa*. But there can be four, or even more, such runs to each house if desired, and the crops can be harvested or left for the fowls to clear.

At first one will do well, in growing crops, to start in a small way, and to provide as much home-grown foodstuff as is possible for the number and kind of stock kept. One may not even seek the aid of the plough at the commencement, but will rely on the spade. The desire may be to have a motor tractor and so forth, realising the very great advantages of such, but it must be a step-by-step process. Roots and forage crops needing simple cultivation may be the first to receive attention, and the highly progres-

sive systems of soiling and continuous cropping will come in for later development. It will be a case of learning to walk ere one endeavours to run.

As experience in cow-keeping is obtained, one small farmer may set up this branch as the main one, and by the time he has got together a herd of milking cows the growing of crops should have been extended accordingly.

The small farmer will need to set apart a suitable place for a food-store. Dry storing is imperative, but that need not necessitate the erection of a special building right away. The ideal store is a building with two floors, the upper one being used as store-place, and the lower one for small lots of foods in the bins for daily use. If the lower section is divided into two, one half can be occupied by the root-cutter, the root-pulper, the chaff-cutter, bone-cutter, hand-mill, cake-crusher, kibbling-machine, and so on. The bins can be connected with the upper floor for "feeding" purposes. But an ordinary outhouse may be requisitioned to start with, and later developments may see a proper store built and machinery installed to save hand-labour; but one needs to move slowly until all such innovations are warranted by successful operations.

A copper in which to boil up the foodstuffs will be a *sine qua non*, and it can be located under a shelter or erected in an outhouse. A portable boiler may be used to start with until the number of stock warrant the use of a larger type of copper. The person with capital *ad lib.* will be tempted to lay out his money in all directions to have an ideal farm and plant right away. I do not advise this procedure. Be the capital what it may, I like a small start, with the money put into the stock to ensure a sound foundation. By keeping one's eyes open it is surprising the very useful appliances that one can buy locally at "bargain" prices, and in some cases at less than their value as scrap-iron. That is the item every small farmer must bear in mind.

The food-store should be conveniently situated to save time and labour, and the progressive farmer will watch these two items. If, for instance, he is rearing his chickens a goodly distance from the general store he might place a small house near the rearing grounds to accommodate the chicken food and thus save many journeys.

In the feeding of stock it is well to remember that you cannot have standardised rations for all. That is where so many go wrong. If you have the right class of animal, then it will respond to clever feeding. And you must find out which menu gives the best returns for each flock or lot of animals. You must have both

eyes on the yield, as that is the guiding principle. You have not merely to "keep the stock alive and in healthy condition ; there must be the "extra " which goes towards the manufacture of the produce. A sow that has just littered will need a different ration from a boar whose services for mating are in constant demand. Stock that are out of profit do not need so stimulating a diet as those that are in full yield. The growing youngster, needs those foods which will make it the well-developed animal when maturity is reached. Variety in feeding is essential, but there must not be erratic changes ; extremes are harmful. Each menu must have a good basis, and there must be the addition and withdrawal of certain ingredients according to the dictates of the season. Cheap feeding is useless if it does not give the maximum yield, and systems of feeding adopted only because of the labour and time saved are unwise if production suffers out of all proportion. Keep both eyes on feeding, therefore, and go all out to study the pros and cons of foodstuffs as applied to stocks of different degrees of condition and production. The stockman must know his animals well, bear in mind the objectives, and feed accordingly. To quote a little vulgarism : " Feed with your head, and not so much with your hand."

The small farmer will learn all there is to know about haymaking, as steps must be taken to secure the maximum hay-crop and to see that it is of best quality. The average person is under the impression that hay is merely dried grass, and it is not until the hay-buyer offers him a ridiculously low sum for his standing rick that he begins to think. There are many grades of hay, each varying in value not only for sale, but also as food for the stock. There is a proper time to cut grass, and a correct way of harvesting it, and these are matters that must be mastered, as they decide the value of the crop. Then comes the aftermath, which can be allowed to grow for a second hay-crop or can be grazed by stock. You must know your meadow-land well, and what it is capable of doing and giving. Even grass-land needs to be cared for.

The small farmer will also learn how to build a rick, and how and when to thatch it. In fact, thatching should be mastered by every small farmer right from the start, as many a thatch-roofed shelter or house can be erected cheaply by the handy-man who knows his work. Then he will probe the methods of storing roots in sheds and in pits or clumps, so that they are protected from cold winds and frosts. In short, he will ascertain the best crops to grow for the stock kept, the best ways of utilising same, and the best methods of storing surplus produce for later use.

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